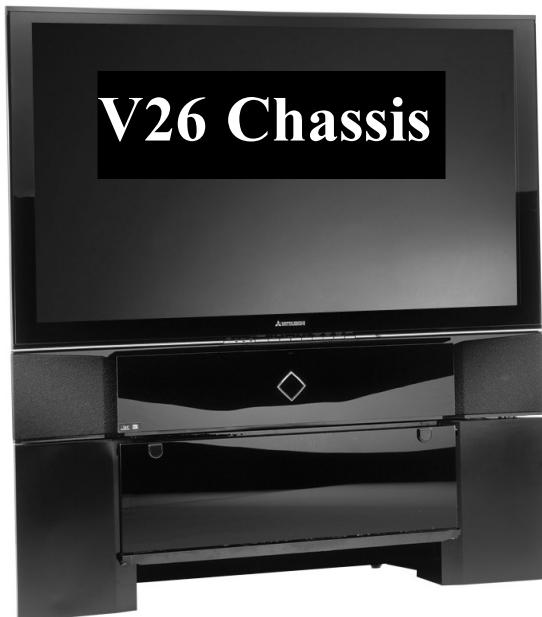




Digital Light Processing™
Projection Television



**TECHNICAL
RAINING**
2004

V26 Chassis

WD-52525

WD-62525

V26+ Chassis

WD-52725

WD-62725

V26++ Chassis

WD-52825

WD-62825

V26 Technical Training

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Chapter 1

Introduction



V26 Chassis	V26+ Chassis	V26++ Chassis
WD-52525	WD-52725	WD-52825
WD-62525	WD-62725	WD-62825

Table 1-1: V26 Chassis Series Models

The new V26 Chassis types are all Integrated HD/Cable Ready TVs. There are three V26 chassis types, V26, V26+ and V26++. The specific models for each chassis type are given in *Table 1-1*.

All of the models are table top models, but matching bases are available for each model. The 52 inch model for each chassis type is shown above, with its matching base.

All models feature:

- Integrated HD/Cable Ready Circuitry

- DLP™ Light Engine
- CableCARD™ Slot
- Memory Card Reader
- HDMI Input

The V26+ models add:

- Anti-Glare Diamond Shield™
- TV Guide On Screen® (when available)

The 26++ models also include HD PVR (High Definition Personal Video Recorder) with a 120 GB Hard Disc Drive.

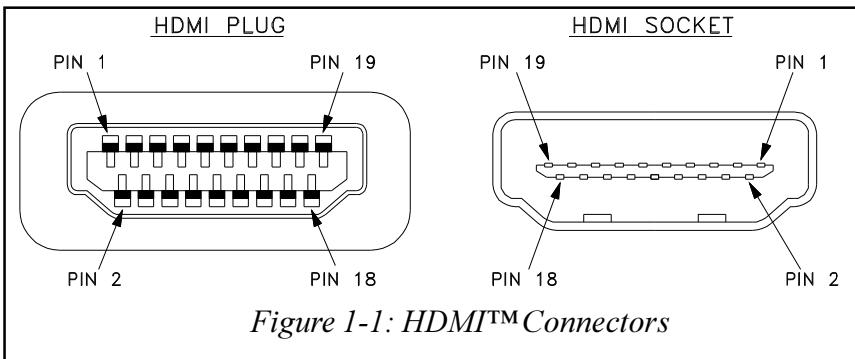


Figure 1-1: HDMI™ Connectors

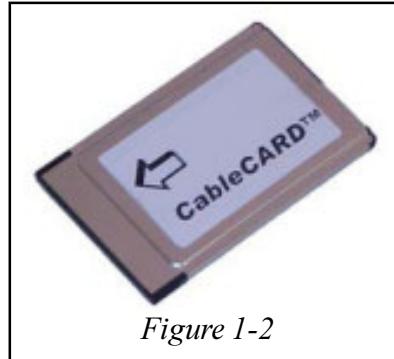


Figure 1-2

HDMI™ & CableCARD™

The HDMI (High Definition Multimedia Interface™) video format is basically the DVI (Digital Visual Interface) format. HDMI adds up to 8 channels of digital sound transmission. It also includes an additional serial bus that may be used for status and control purposes.

Although the HDMI format is similar to DVI, the connectors are different. *Figure 1-1* shows HDMI plug and

socket connectors. DVI to HDMI adaptors are available so DVI equipment can be connected to the TV..

The CableCARD™ feature is the basis for the new regulation for Plug and Play Cable Standard. *Figure 1-2* illustrates the typical CableCARD.

Both HDMI and CableCARD were described in detail in the *V25 Technical Description* so it will not be repeated in this book.

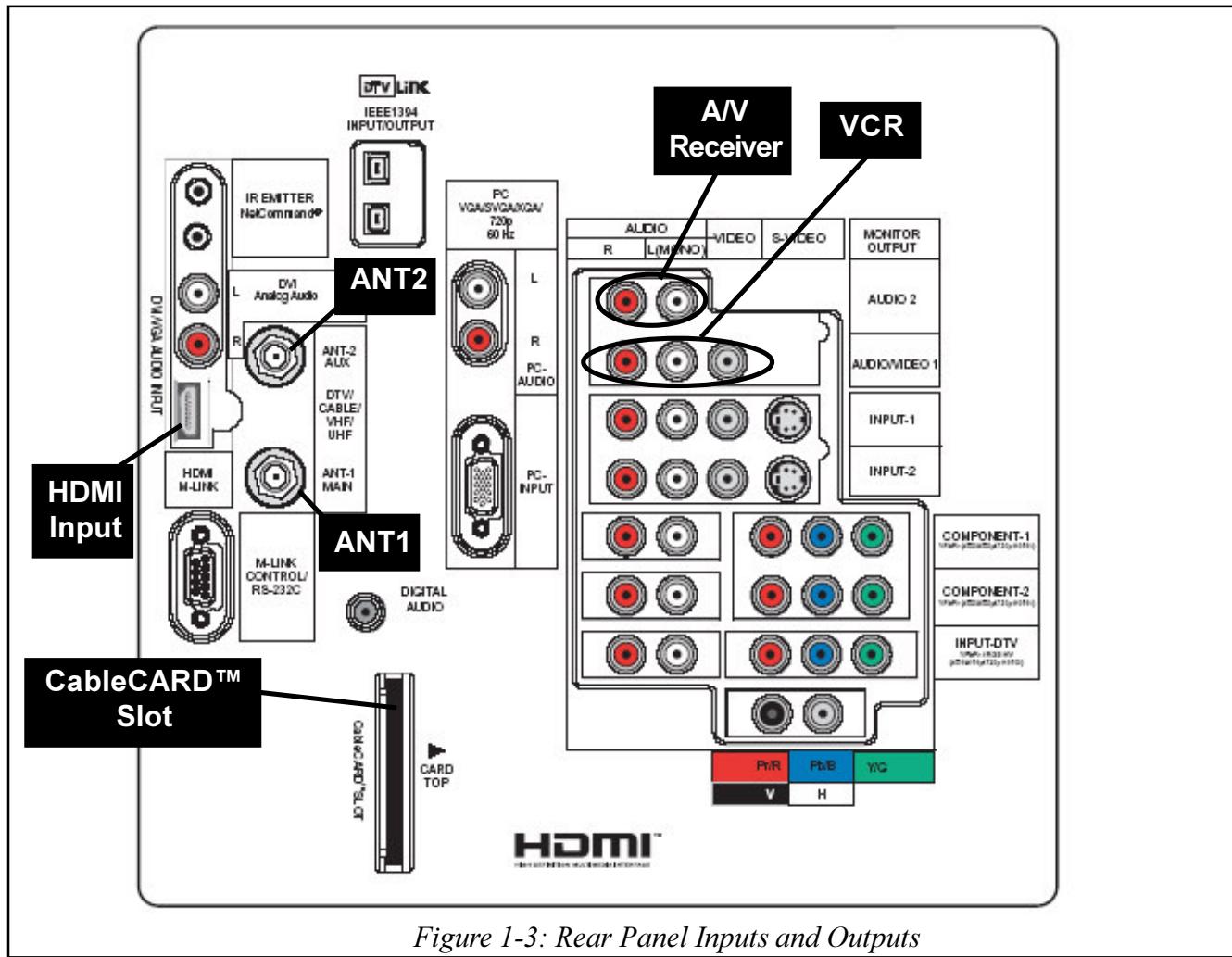


Figure 1-3: Rear Panel Inputs and Outputs

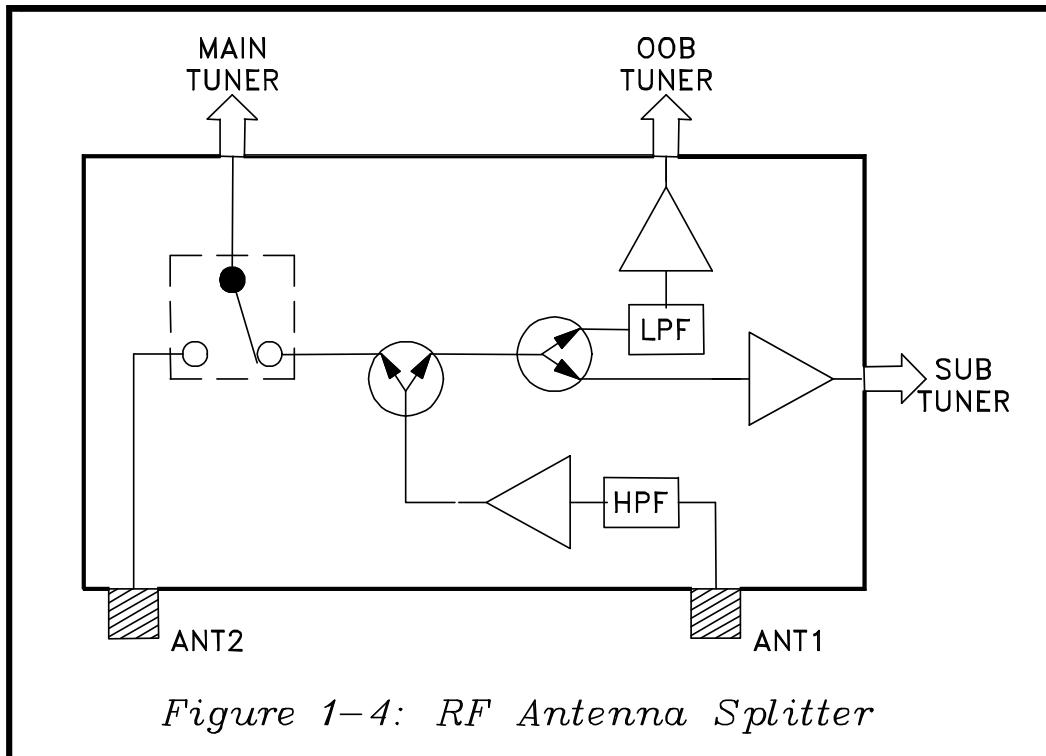


Figure 1-4: RF Antenna Splitter

Figure 1-3 shows the Rear Panel location of the HDMI input socket and the CableCARD™ Slot.

RF Antenna Inputs

Note in *Figure 1-3* there are only two RF Antenna Inputs, instead of three. Signal input to ANT 1 is amplified and directed to both the Sub and Main Tuners.

The Main Tuner can process either NTSC or ATSC (HD) signals. The Sub Tuner processes only NTSC signals, mainly as a sub picture source.

The ANT 2 input connects directly through the Antenna Relay, to the Main Tuner. *Figure 1-4* is a simplified schematic of the RF Antenna Splitter. The OOB (Out of Band) Tuner is used when cable information and On Screen Channel Guides are available.

PVR (Personal Video Recorder)

This feature is only available on V26++ models. It utilizes a 120 GB Hard Drive (HDD) to record digital signals from either the Antenna Inputs or 1394 Inputs:

- SD digital channels
- HD digital channels

- 1394 digital signals.

It can also record analog 480i signals from the:

- Antenna Inputs
- External Composite Video Inputs
- External S-Video Inputs

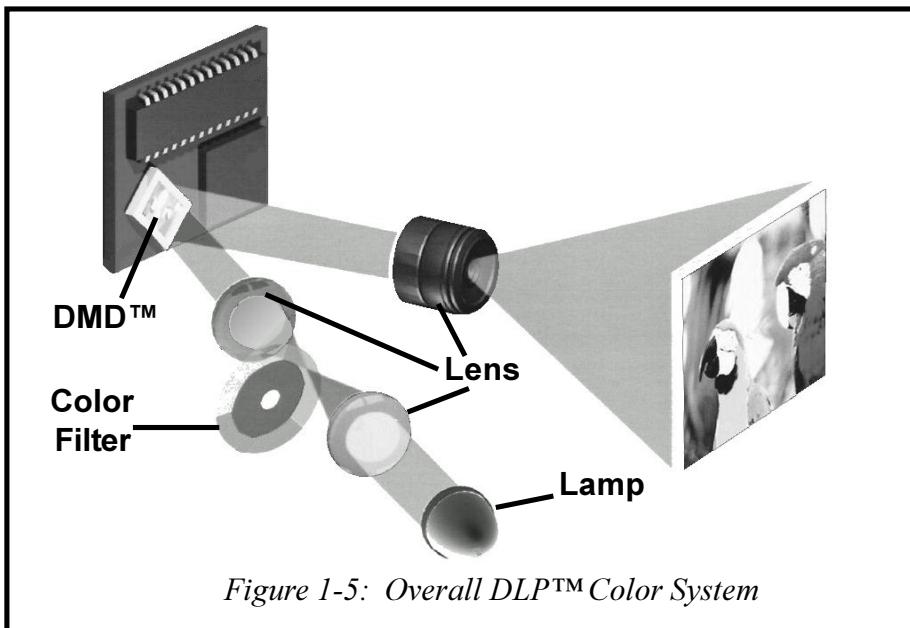
Analog 480i signals are converted to digital and then MPEG-2 compressed before recording on the HDD.

The PVR also features "TV Pause" and up to 30 minutes of the current program is recorded. This enable a rewind feature for up to 30 minutes and the TV Pause feature..

DLP™ Fundamentals

Although the basic principles have not changed, a quick review of Digital Light Processing™ system may be in order. *Figure 1-5* illustrates the Overall DLPTM System.

A light source is directed through a RGB Color Filter wheel, and is directed to the reflective surface on a DMD™ IC (Digital Micromirror Device™). Light from



the DMD is directed through a Projection lens to the Projection Screen.

Figure 1-6 shows a close up of a DMD IC. What appears to be a single mirror on the IC is actually close to one million individual mirrors, refer to *Figure 1-7*.

Figure 1-8 shows that the tilt of each mirror is controlled by changing tilt to either ± 10 degrees. The tilt of the mirror determines if the light from the mirror passes through the Projection Lens to the screen (light pixel), or to a light absorber (dark pixel), refer to *Figure 1-9*.

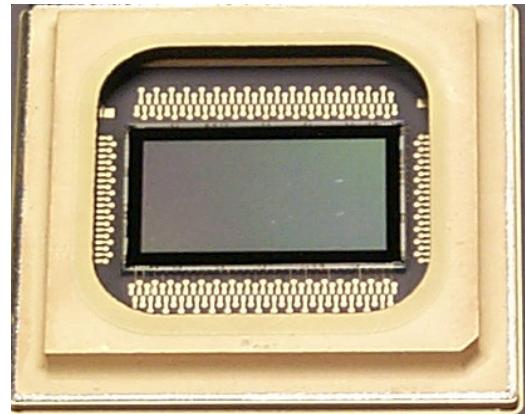


Figure 1-6: Digital Micromirror Device™

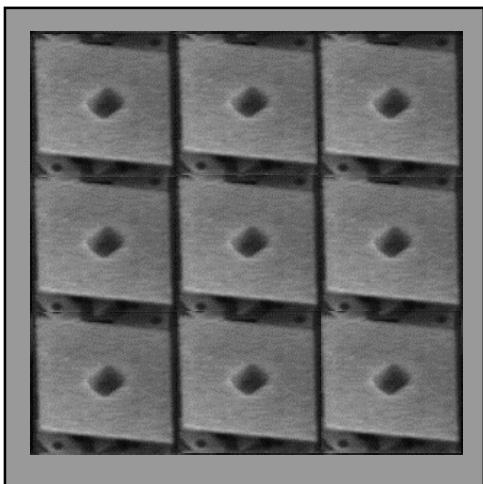


Figure 1-7: Micro Mirrors

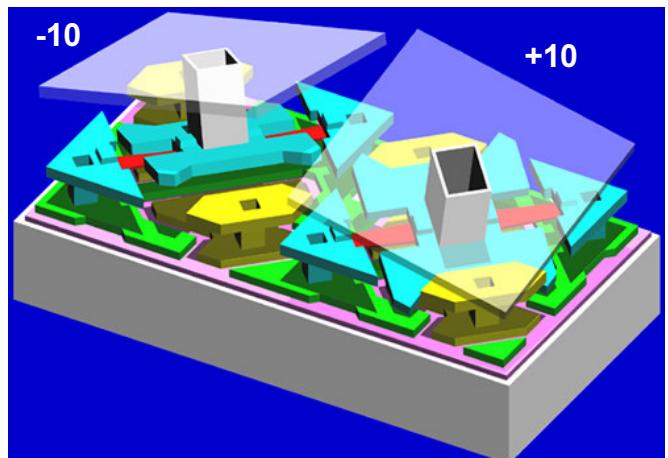


Figure 1-8: ± 10 Degree Mirror Tilt

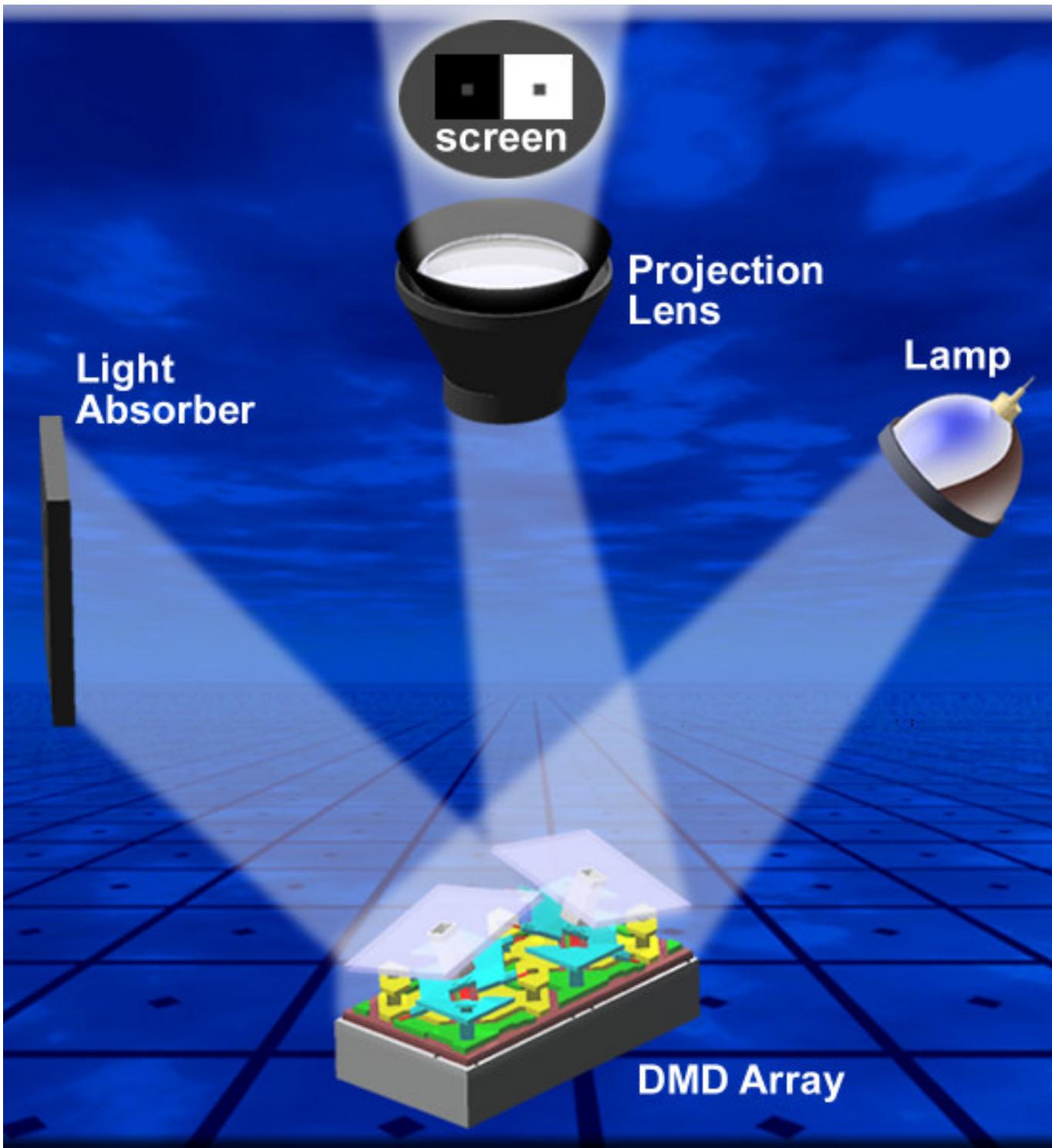


Figure 1-9: Light Pixel / Dark Pixel

Although the basic fundamentals still apply, the Light Engine has been improved and is much smaller than in previous models. Also the light path from the Projection Lens to the screen has been changed.

Light Path Changes

Figure 1-10 illustrates the Light Path in V26 models. The light from the Light Engine Projection Lens is now directed toward a small mirror in the front of the cabinet.

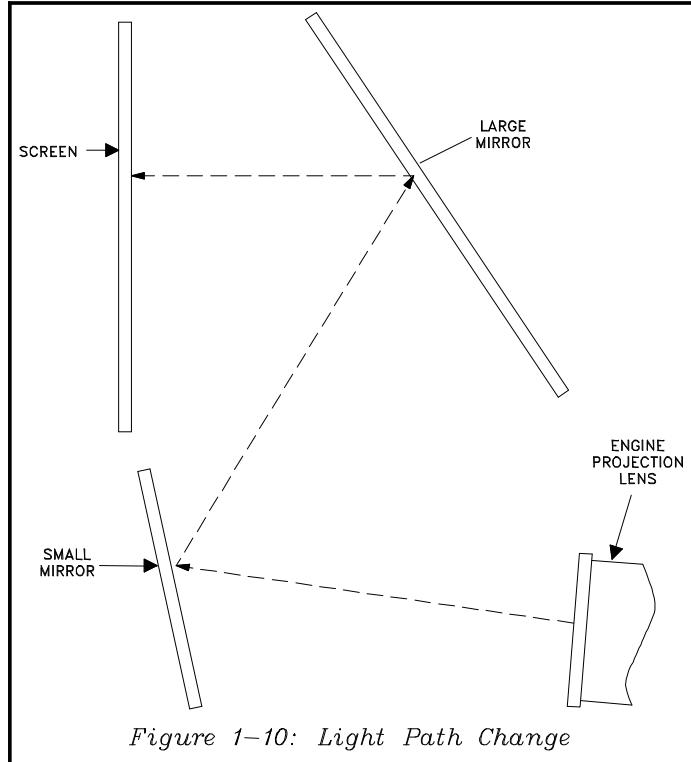


Figure 1-10: Light Path Change

From the small mirror the light is reflected to the conventional large mirror and then to the projection screen. In previous DLP models the small mirror was not used.

Figure 1-11 shows the V26 Light Engine. Although not evident in *Figure 1-11*, it is much smaller than the Engine in previous models. The Engine is supported by an

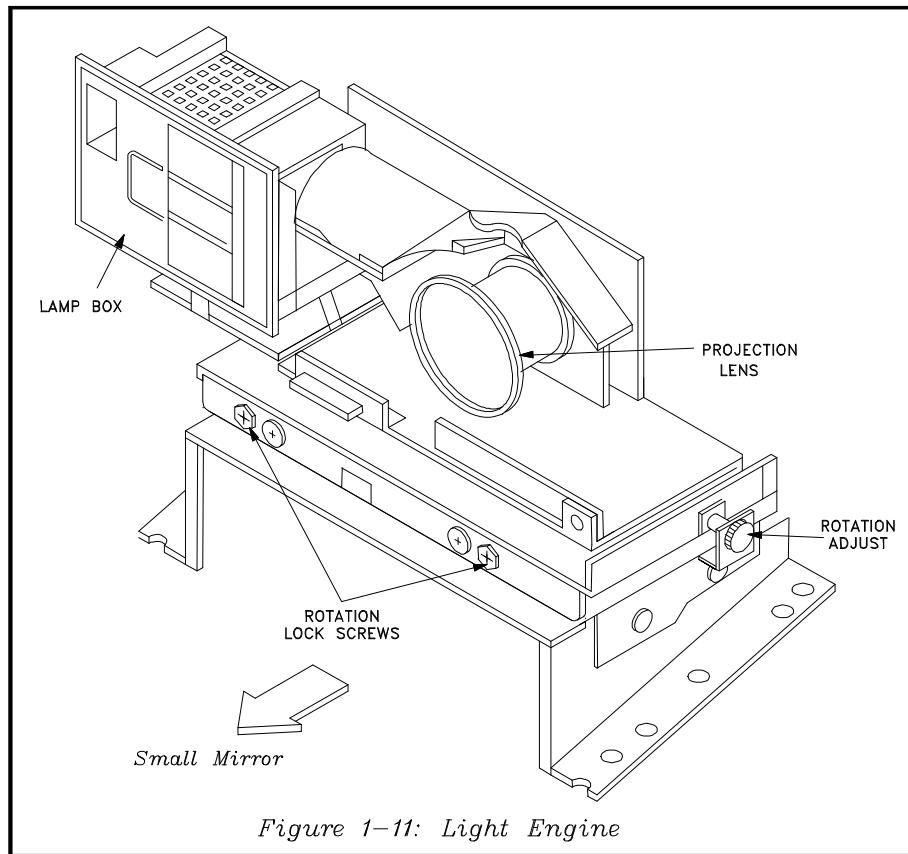


Figure 1-11: Light Engine

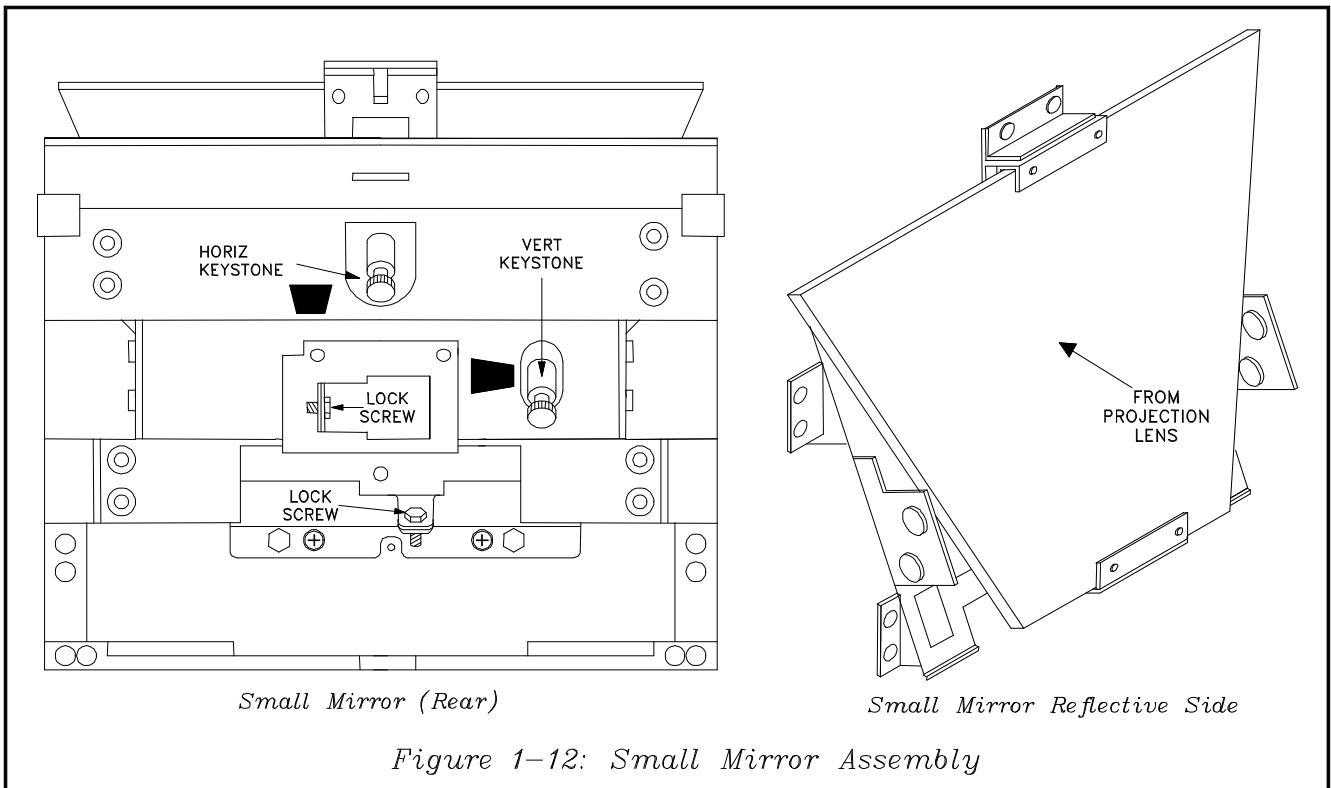


Figure 1-12: Small Mirror Assembly

Adjuster Assembly which includes the picture rotation adjustment screw.

Figure 1-12 illustrates the front and back sides of the small mirror. The position of the small mirror is controlled by the adjustments on the back side of the mirror. These adjustments control Horizontal and Vertical Keystone distortion.

In nearly all cases no adjustments are required during servicing. The only time adjustments may be required are when the Chassis or Light Engine has been replaced.

NOTE: Warranty payment for adjustments is only valid if the Chassis or Light Engine has been replaced.

Servicing

Servicing the V26 series of models is **Down to Major Component Replacement Level Only**. The major components in V26 models are the:

- Chassis
- Light Engine
- Lamp Ballast
- Hard Drive (V26++ only)

Figure 1-13 shows the location of the three main major components used on all models.

Sub Assemblies can be ordered separately, such as:

- Card Reader
- Cooling Fans
- Front Panel PWBs

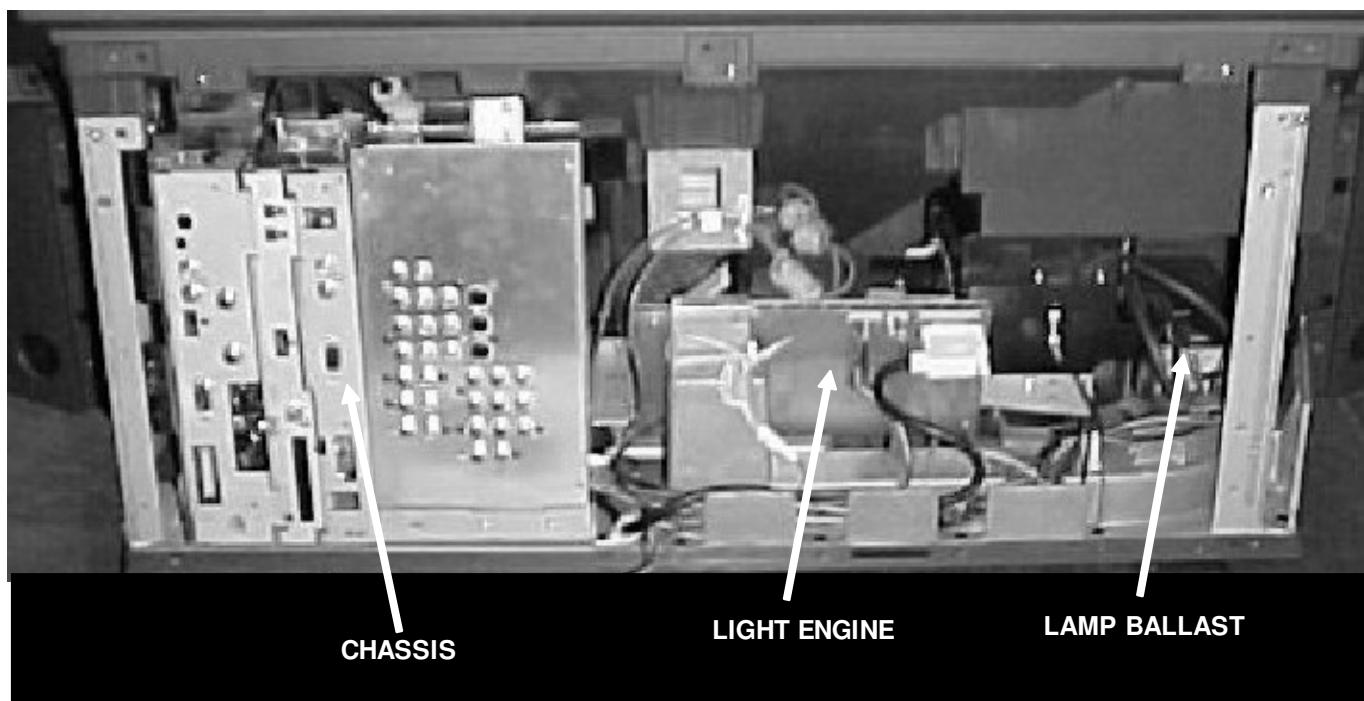


Figure 1-13: Major Components

Chapter 2

Disassembly

Servicing the V26 models consists mainly of replacing major components. These disassembly procedures are geared to accessing and replacing these major components:

- Light Engine
- Chassis
- Lamp Ballast
- PWB-POWER (Optional)

To order any of the major components, T/A (Technical Advisory) authorizations is required.

Front Disassembly

Front Disassembly is not required for accessing or removal of the Chassis, but is required for Light Engine replacement and to perform mechanical adjustments.

One new component used in the V26 and V25 models is a reusable Wire Tie, shown in *Figure 2-1*. Do Not cut the Wire Tie during disassembly. Lift the tab to release the Wire Tie lock.

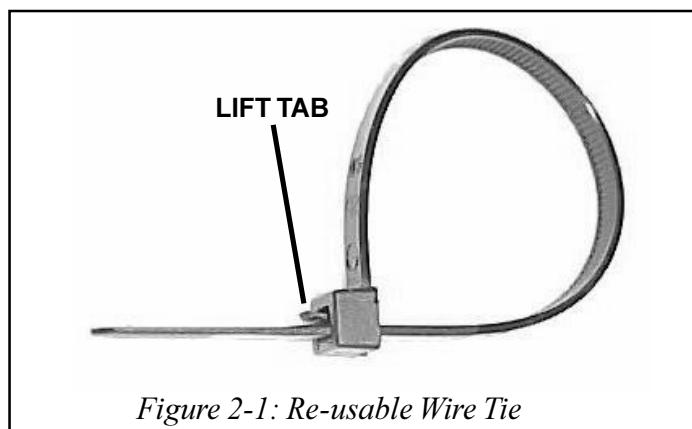


Figure 2-1: Re-usable Wire Tie

**WD-52525/WD-62525
WD-52725/WD-62725**

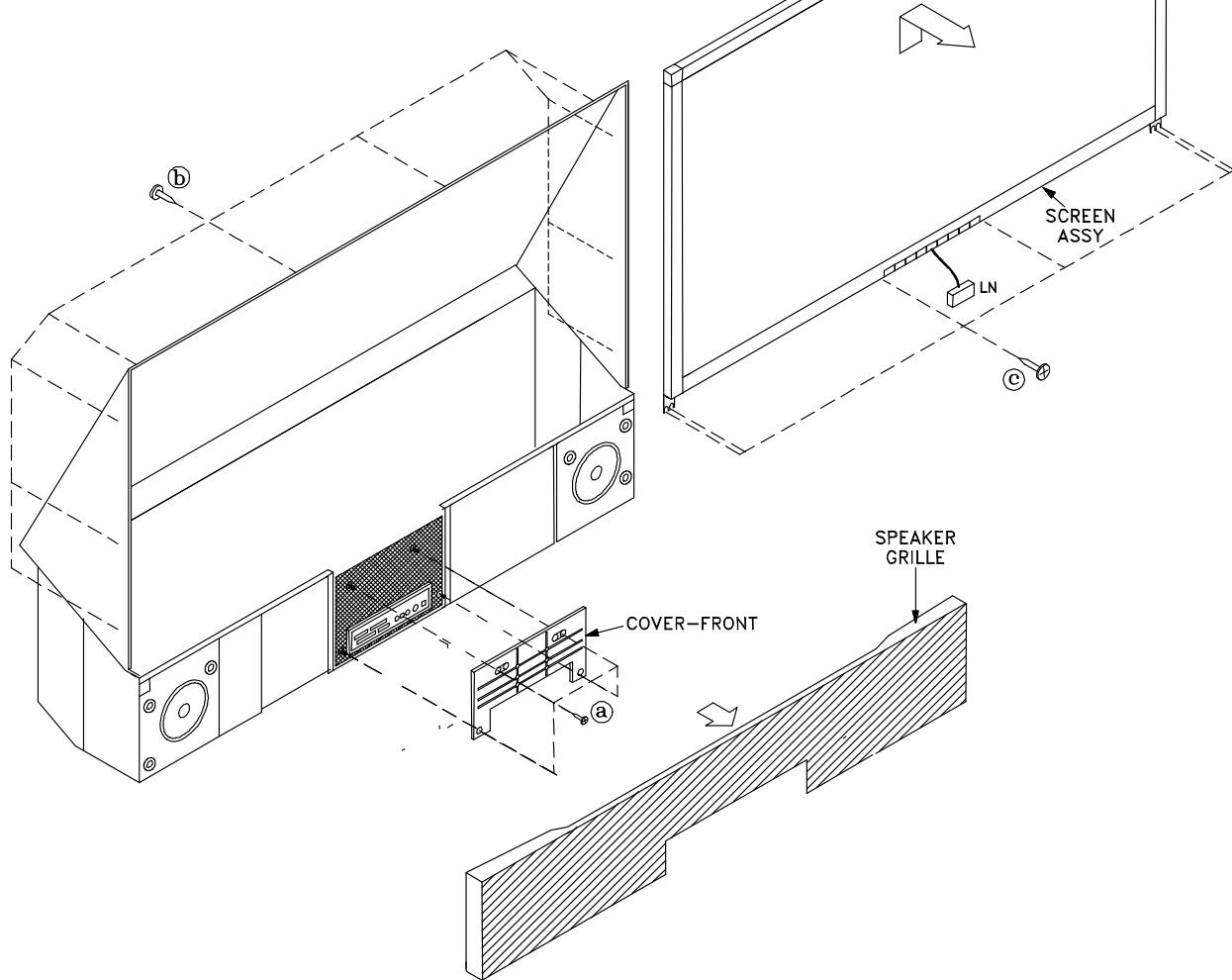


Figure 2-2: V26 & V26+ Front Cabinet Disassembly

There are two basic Front Disassembly procedures, one for V26 and V26+ models, and one for the V26++ models. *Figure 2-2* illustrates Front Disassembly for the V26 and V26+ models.

- 1) Pull off the Speaker Grille.
- 2) Remove four screws (a) securing the COVER-FRONT.
- 3) Remove 10 screws (b) from the Upper Rear Cover.

- 3 screw on each side
 - 4 screws across the top
- 4) Remove 6 screws (c) at the bottom of the Screen Assembly.
 - 5) Unplug the LN connector from the Control Panel.
 - 6) Lift the screen assembly slightly and then pull away from the cabinet.

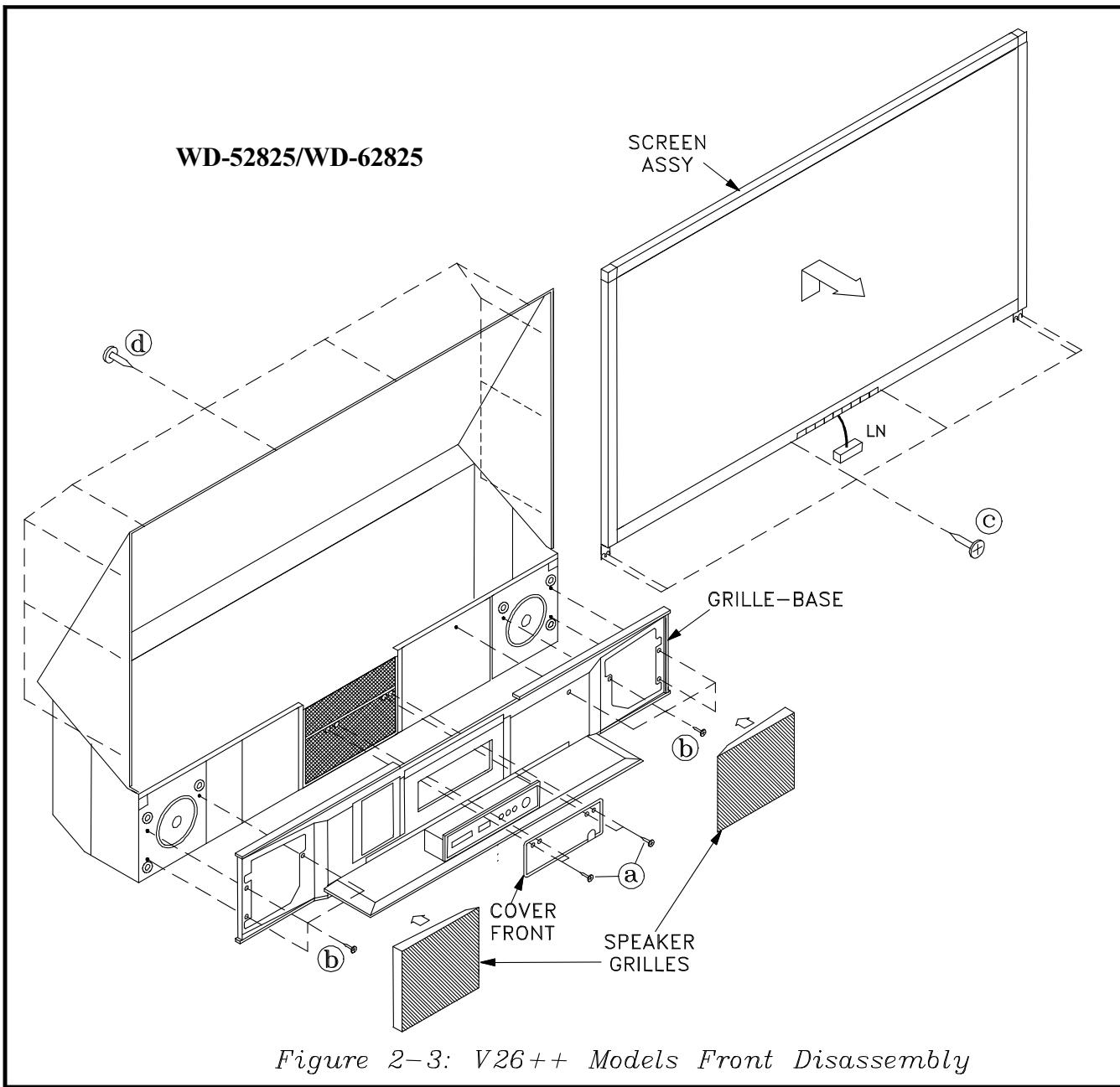
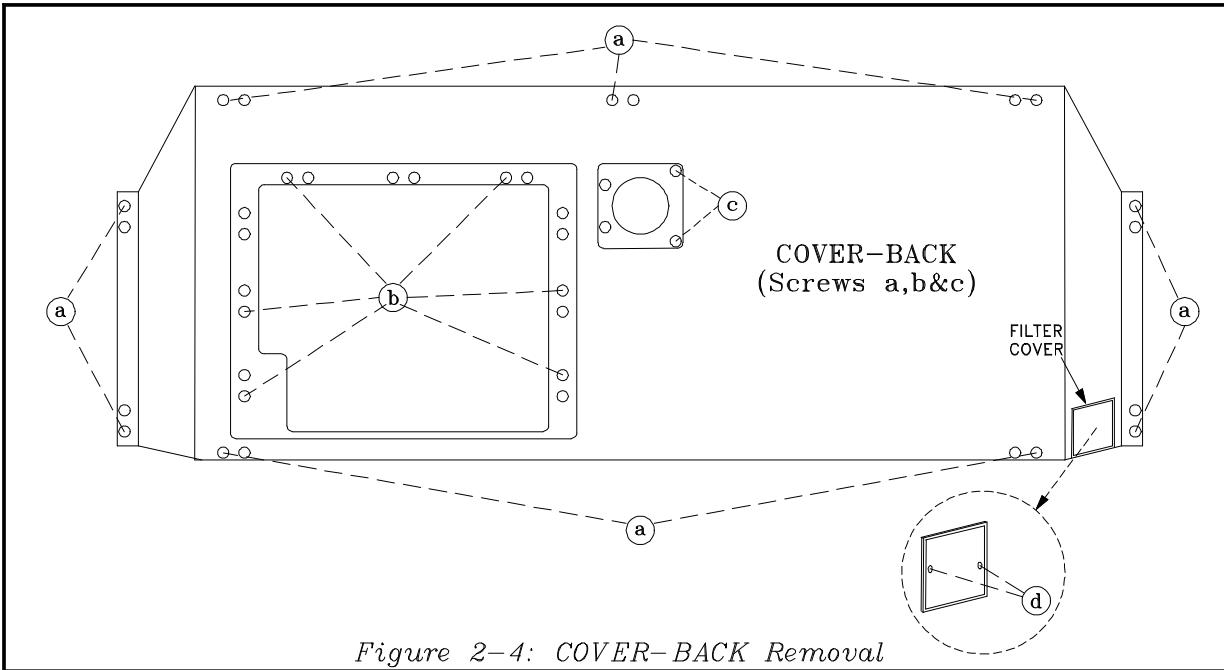


Figure 2-3: V26++ Models Front Disassembly

The front Cabinet Disassembly for the V26++ models is illustrated in *Figure 2-3*.

- 1) Pull off both Speaker Grilles.
- 2) To remove the COVER-FRONT, remove 4 screws (a).
- 3) Remove 7 screws (b), to remove the GRILLE-BASE.
- 4) To remove the Screen Assembly:

- Unplug the LN connector.
- Remove 6 screws (c) from the bottom of the Screen Assembly.
- Remove 10 screws (d) from the upper rear cover.
- To remove the Screen Assembly, lift upward and then away from the cabinet.



Rear Disassembly

The Rear Cabinet Disassembly is basically the same for all models. *Figure 2-4* illustrates the COVER-BACK removal.

- 1) Remove 2 screws (d) to remove the Filter Cover.
- 2) Remove screws from the COVER-BACK, 9 screws (a), 6 screws (b) and 2 screws (c).

- 3) Pull the COVER-BACK from the cabinet.

Figure 2-5 shows the Rear Plate removal procedure.

- 1) Remove 6 screws (a) at the sides of the Rear Plate.
- 2) Remove 10 screws (b).
- 3) Lay the Rear Plate on the floor behind the set, *Figure 2-6*.

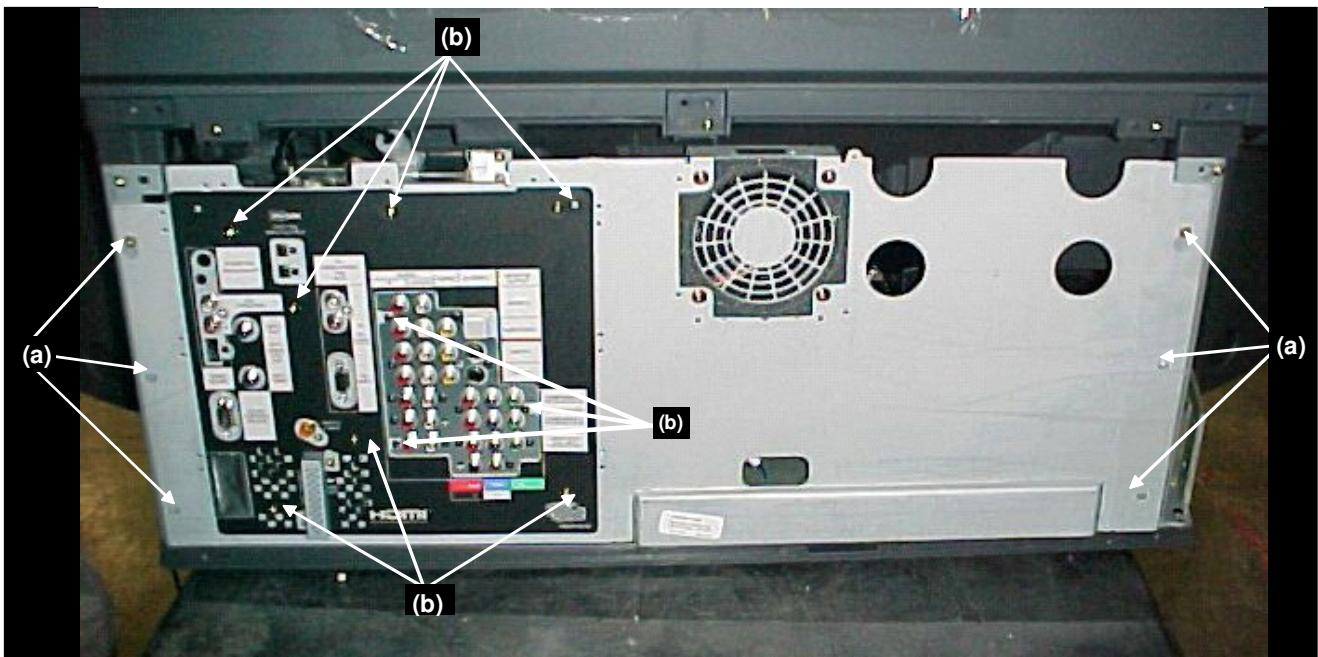


Figure 2-5: Rear Plate Removal

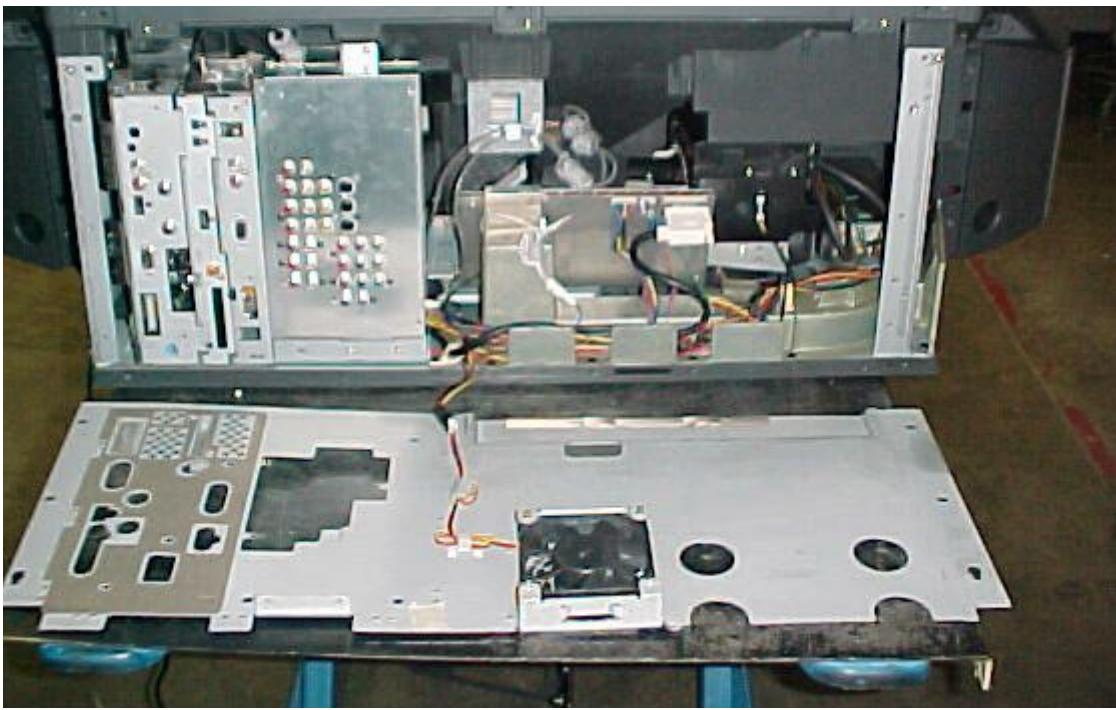


Figure 2-6: Rear Plate Removed

Accessing the Chassis

- 1) Remove the 4 screws (a), (*Figure 2-7*)
- 2) Unplug the USB and 1394 from the Card Reader, *Figure 2-8*.

NOTE: In the V26++ models, the 1394

connector plugs into the Hard Drive Module.

- 3) Carefully slide the chassis toward the rear of the cabinet.

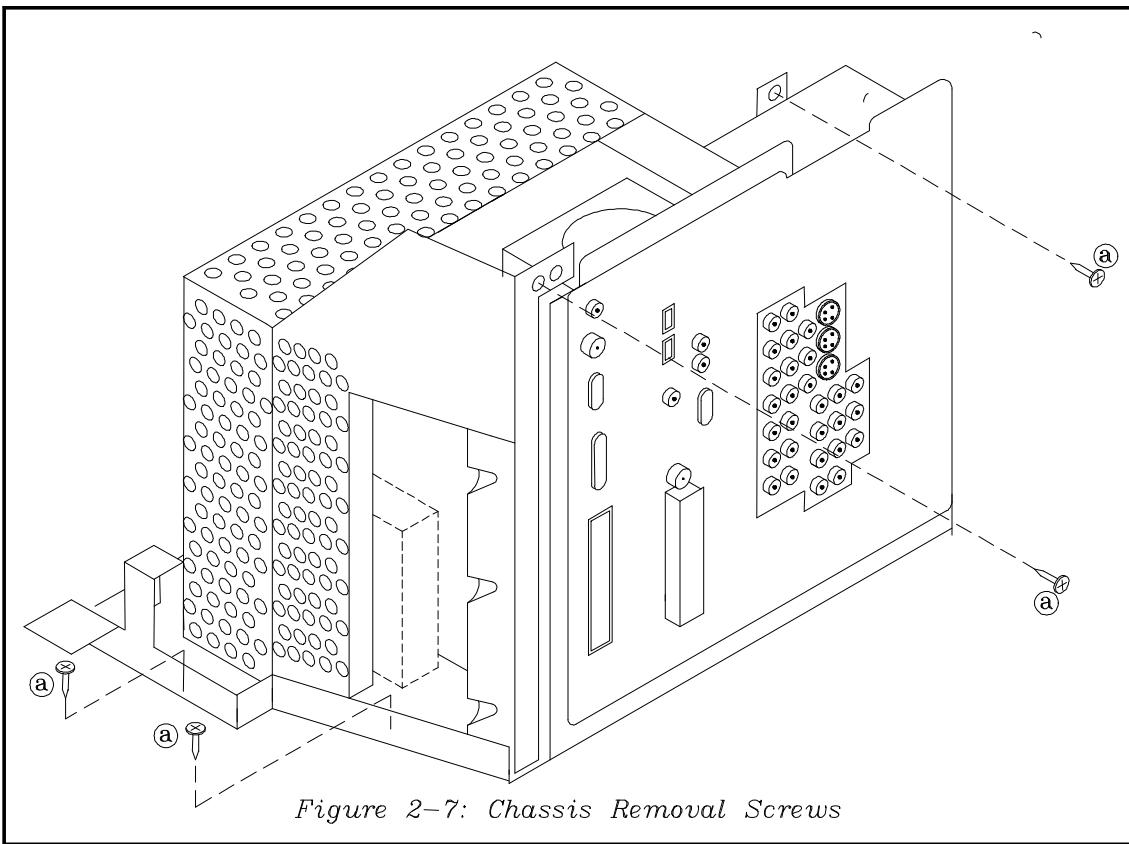
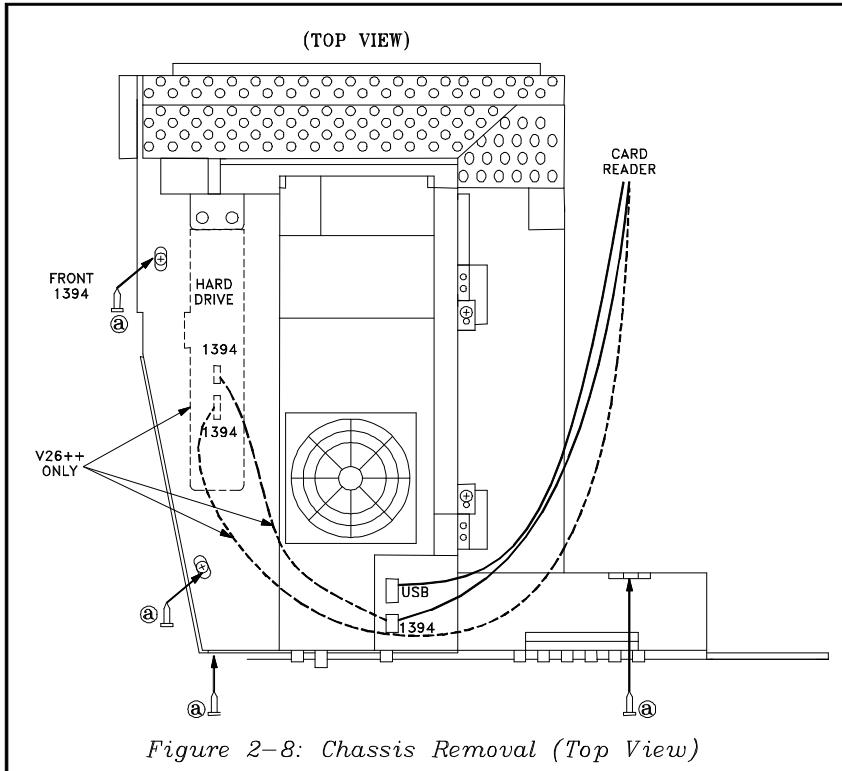


Figure 2-7: Chassis Removal Screws



Accessing PWB-POWER

- 1) Carefully rotate & slide the chassis from the cabinet to access the front of the chassis.

- 2) Remove 8 screws (a), *Figure 2-9*
 - 3) Remove PWB-POWER shield, *Figure 2-10*

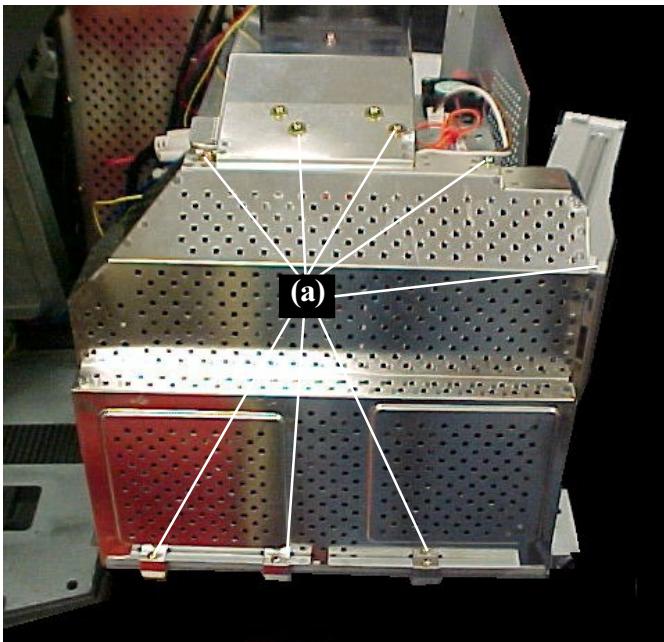


Figure 2-9: PWB-POWER Shield Removal

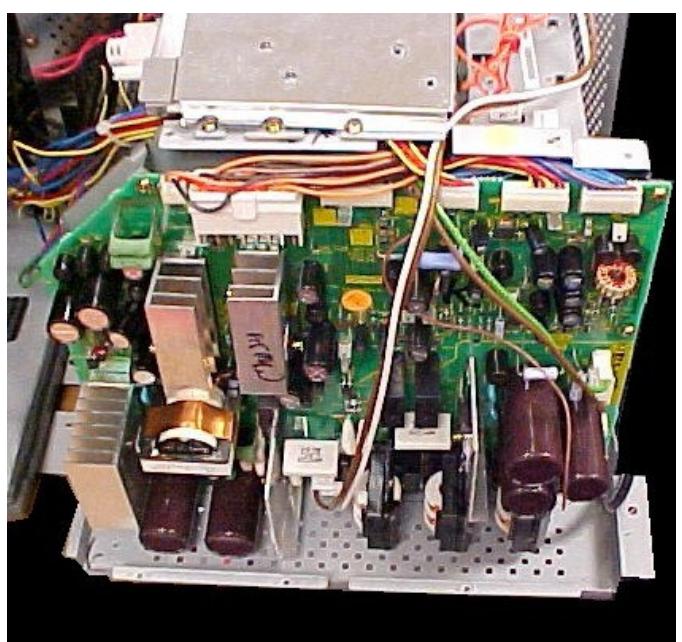


Figure 2-10: PWB-POWER, Shield Removed

Chassis Removal

After removing the screws and cables shown in *Figure 2-7*:

- 1) Disconnect all cables to the front of the cabinet and the Light Engine.
 - 2) Disconnect the cables to the Lamp Ballast (see the following procedure).

Accessing & Disconnecting the Lamp Ballast

Remove the Right Rear Support Bracket

- 1) Remove the 3 screws (a) holding the rear right support bracket, *Figure 2-13*.
- 2) Lift the upper cabinet slightly to remove the support bracket.

Remove the Lamp Ballast Shield

- 1) Remove the 4 screws, *Figure 2-14*.
- 2) Remove the Ballast Shield

Unplug the connectors to the Lamp Ballast

Refer to *Figure 2-15*.

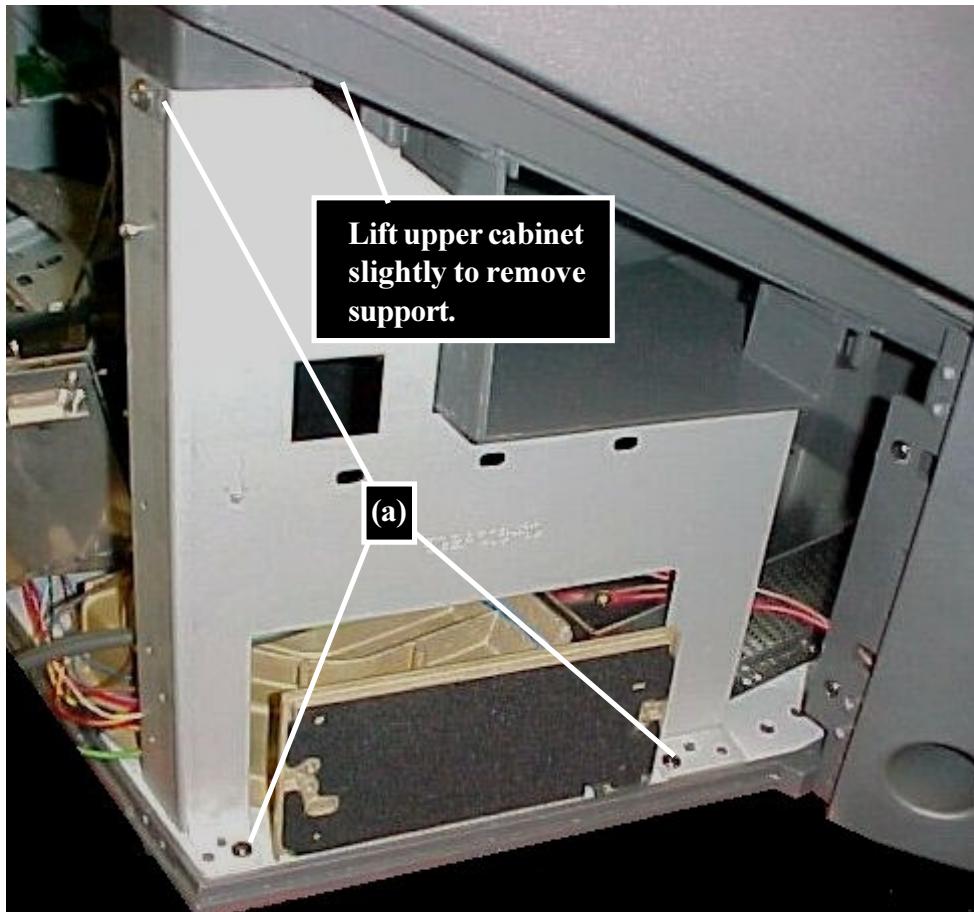


Figure 2-13: Rear Right Support Removal

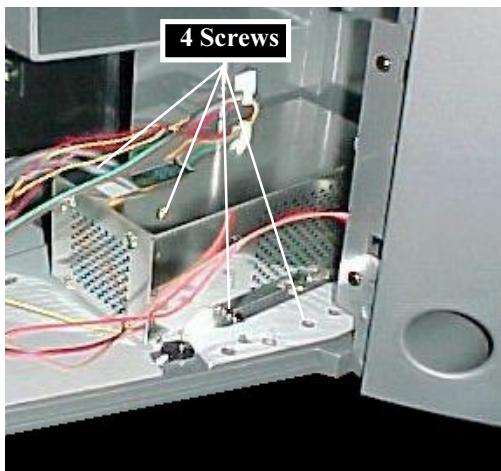


Figure 2-14: Ballast Shield Removal

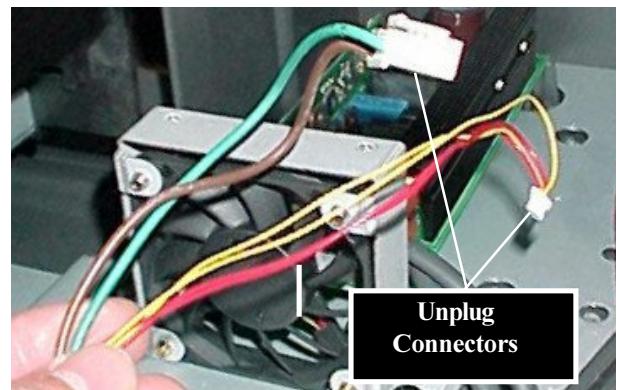


Figure 2-15: Unplug Ballast Connectors

Chapter 3

Light Engine Replacement

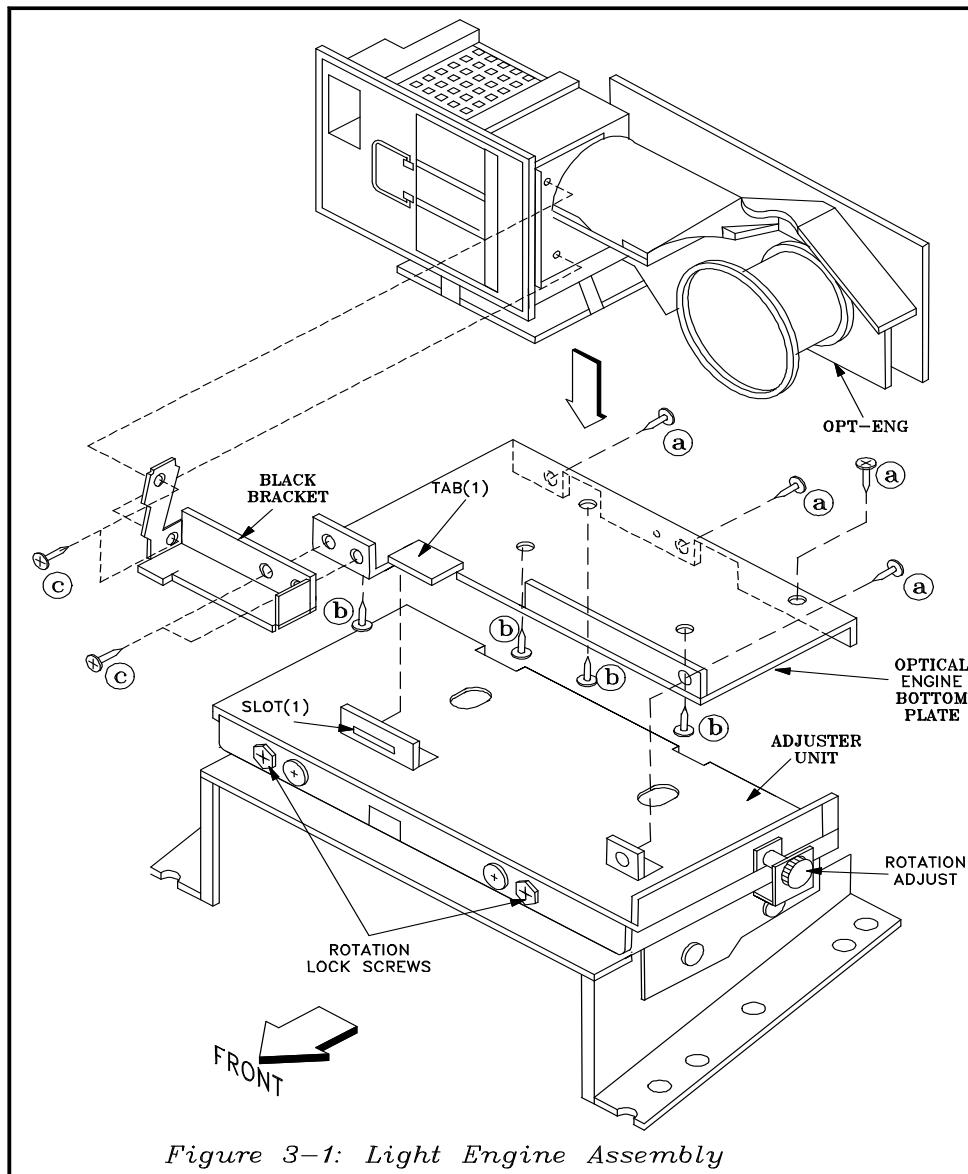


Figure 3-1: Light Engine Assembly

The initial steps to replace the Light Engine are removing the COVER-BACK, and the Rear Plate, refer to Chapter 2. Next unplug all cables to the Light Engine.

Figure 3-1 illustrates the components of the Light Engine assembly. The assembly consists of:

- Optical Unit (including the Lamp Box)

- Metal base plate & black support bracket
- Adjuster unit.

When removing the Light Engine, the Optical Unit, black support bracket and base plate come out as a unit. The Adjuster assembly does not need to be removed.

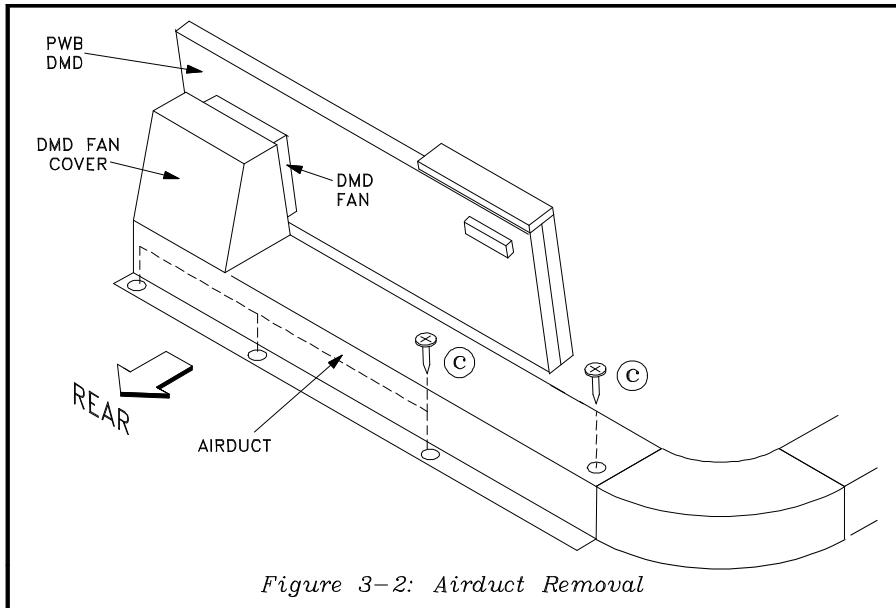


Figure 3-2: Airduct Removal

To access the screws securing the Light Engine, the Airduct and DMD Fan Cover must be removed from the rear of the set. Remove the 4 screws (c) shown in *Figure 3-2* to remove the cover.

With the Airduct removed, the Light Engine removal screws are accessible from the rear of the set. Remove the 4 screws (a) shown in *Figure 3-3*.

The Light Engine, metal base, and black support bracket can be removed by pulling the assemble back towards the rear and then upward.

CAUTION: Take care not to damage the sponge around the Optical Unit Lens when removing the Light Engine.

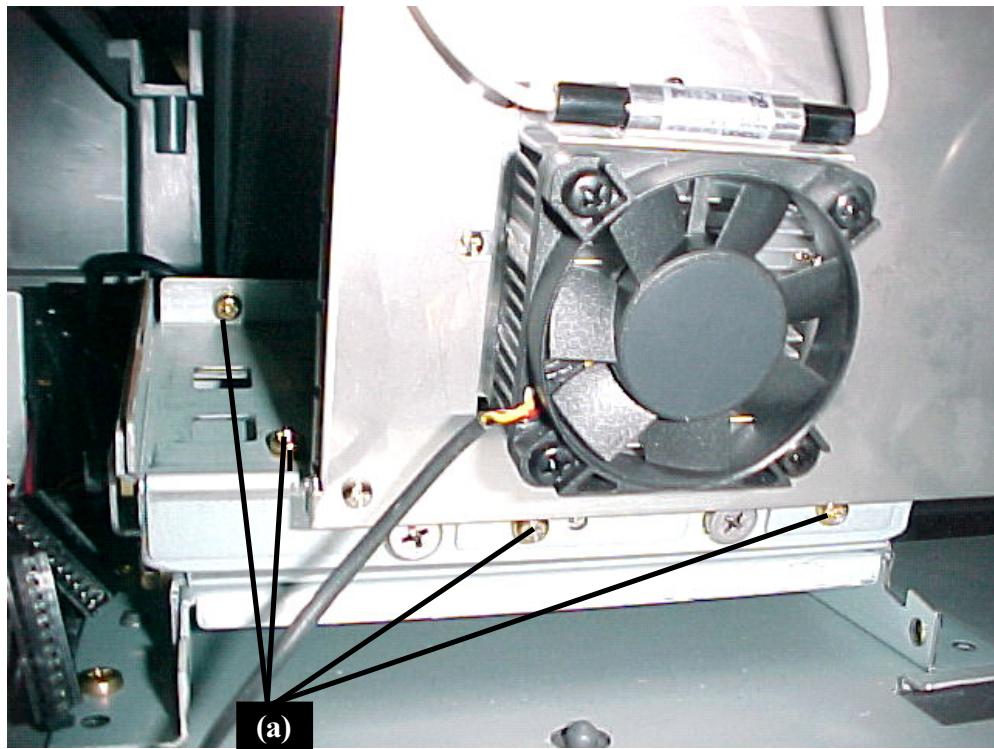


Figure 3-3: Light Engine (Rear View) Airduct & Fan Cover Removed

The DMD Heat Sensor, Optical Unit bottom plate and black support bracket do not come with the replacement Light Engine. Remove these components from the old Light Engine.

- DMD Heat Sensor removal (*Figure 3-4*).
- Bottom plate removal (*Figure 3-5*).
- Black support bracket removal (*Figure 3-6*).

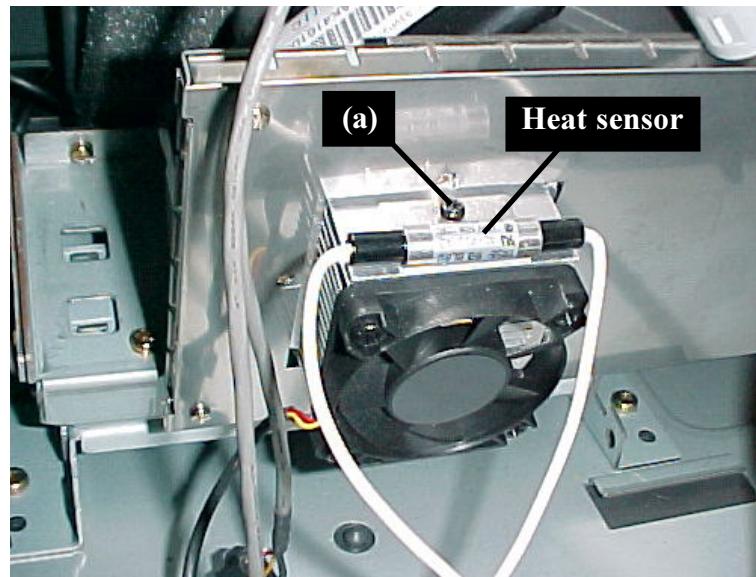


Figure 3-4: DMD Heat Sensor

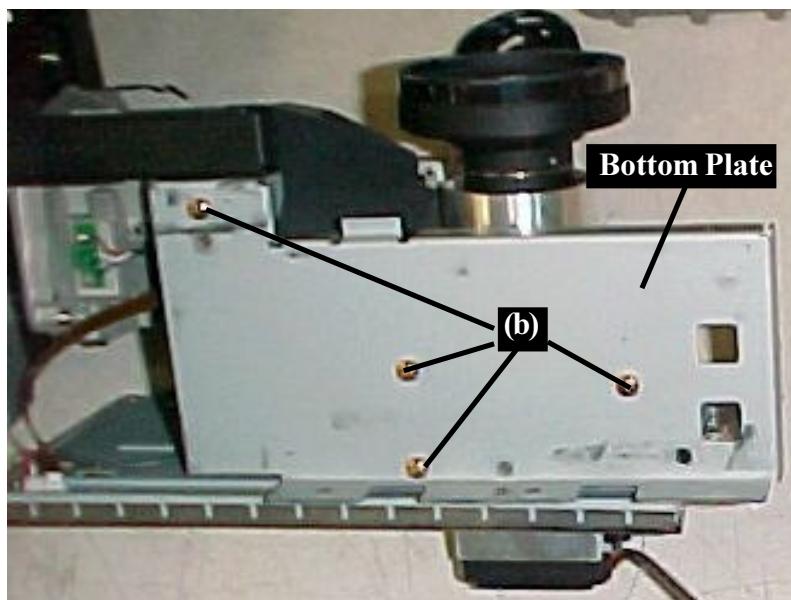


Figure 3-5: Bottom Plate Removal

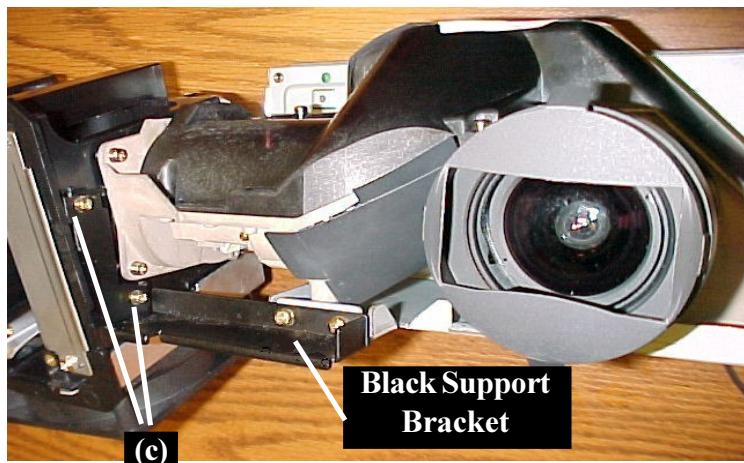


Figure 3-6: Black support Bracket Removal

Installing The Replacement Light Engine

- 1) Install the DMD Heat Sensor, Optical Unit bottom plate, and black support bracket on the new Light Engine.
- 2) Reverse the removal procedure to install the new Light Engine on the Adjuster assembly.

CAUTION: Take care that the sponge around the Lens does not cover any part of the Lens opening..

After installation, data from the new Light Engine must be transferred to the chassis and the following adjustments checked:

- Horizontal Centering
- Vertical Centering
- Picture Rotation
- Vertical Keystone Distortion
- Horizontal Keystone Distortion

The Data Transfer and Adjustment Procedures are given in *Chapter 4*.

Chapter 4

Service Adjustments

In the V26 model series, service adjustments are rarely required. The only time they may be needed is after replacing the Light Engine or the Chassis.

The only valid warranty adjustment claims are those where the Light Engine or Chassis has been replaced.

Option Menu Mode

There is an Option Menu as in previous models. The access code is "MENU-2-4-7-0". *Figure 4-1* shows the V26 Option Menu

Note that usage information has been added at the bottom of the Option Menu Display. There are five usage time values displayed. Starting at the left:

- The TV's total hours used.
- Current Lamp Usage.
- Previous 1 Lamp Life
- Previous 2 Lamp Life
- Previous 3 Lamp Life

Service Adjustment Mode

Only two electrical service adjustments are performed in the Service Mode, but the Service Mode must be

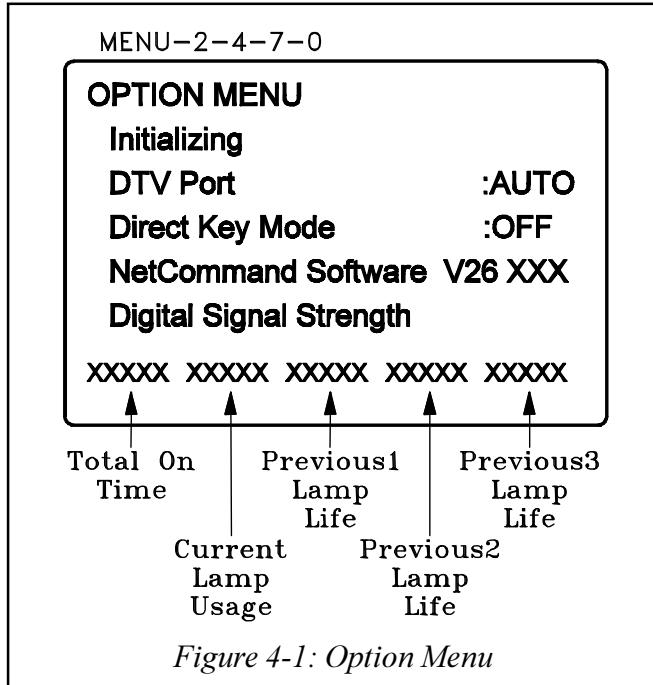


Figure 4-1: Option Menu

accessed to activate an internal Test Pattern used for both electrical and mechanical adjustment.

The Service Mode access code in the V26 models is "MENU-2-4-5-7". The procedure for selecting adjust-

ments, changing data, saving data changes and exiting the Service Mode is the same as in previous models. These procedures are shown in flow chart form in *Figure 4-2*.

Internal Test Pattern

To activate the internal Test Pattern used for all service adjustments, press "REWIND" when in the Service Mode. *Figure 4-3* illustrates the internal Test Pattern.

Service Adjustments

There are only 5 Service Adjustments in the V26 model series. This are seldom, if ever needed. If the Light Engine or Chassis is replaced these adjustments may be needed.

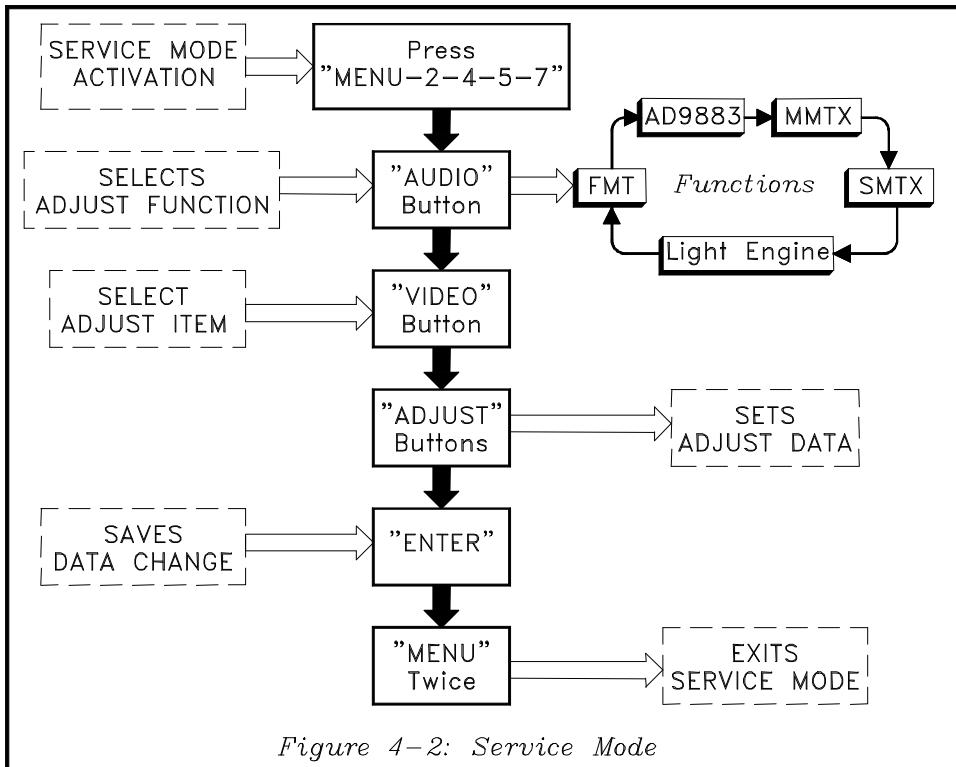


Figure 4-2: Service Mode

The five adjustments are:

- 1) Horizontal Position (electrical)
- 2) Vertical Position (electrical)
- 3) Picture Rotation (mechanical)
- 4) Horizontal Keystone (mechanical)
- 5) Vertical Keystone (mechanical)

Position Adjustments

- 1) Enter the Service Mode
"MENU-2-4-5-7"
- 2) Press "REWIND" ... activates the Test Pattern
- 3) Select the Format function ...
"AUDIO" button
- 4) Select Item #1 ... HPOS
(VIDEO button)
- 5) Adjust data to center the picture horizontally.
- 6) Select Item #2 ... VPOS (VIDEO button)
- 7) Adjust Data to center the picture vertically.
- 8) Press "ENTER" to save data changes.

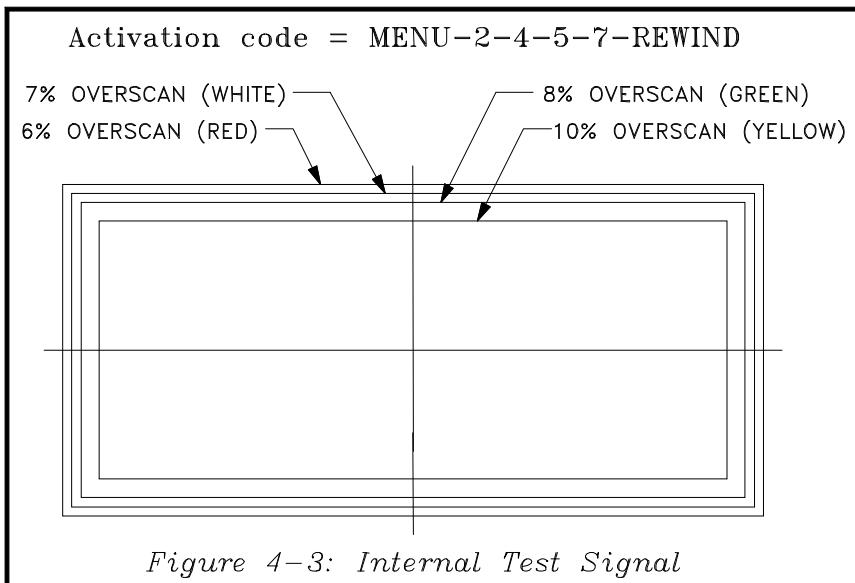


Figure 4-3: Internal Test Signal

CAUTION: DO NOT set VPOS data to 255 or 0 and press Enter. The picture may freeze and blank out.

Mechanical Adjustments

A certain amount of disassembly is required before the mechanical adjustments can be performed. The cabinet COVER-BACK and Rear Plate must be removed. Refer to *Chapter 2* for the back removal procedures.

The Front cover must be removed to give access to the Light Engine Adjuster assembly, and the small mirror adjuster assembly. *Figure 4-4* illustrates Front Cover removal on the V26 and V26+ models. *Figure 4-5* shows the required Front Cover disassembly on the V26++ models.

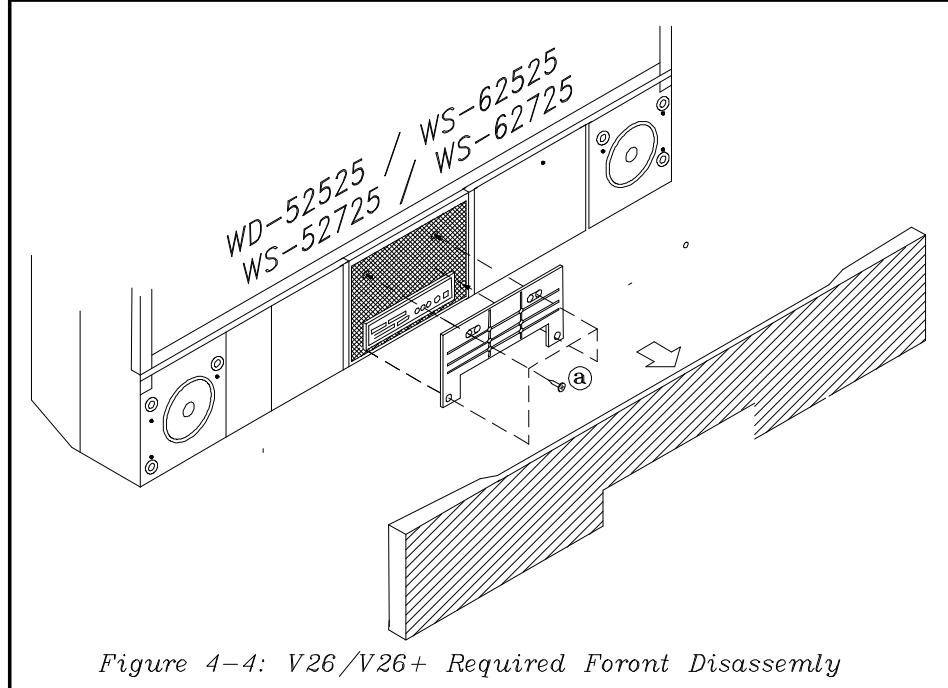


Figure 4-4: V26 /V26+ Required Front Disassembly

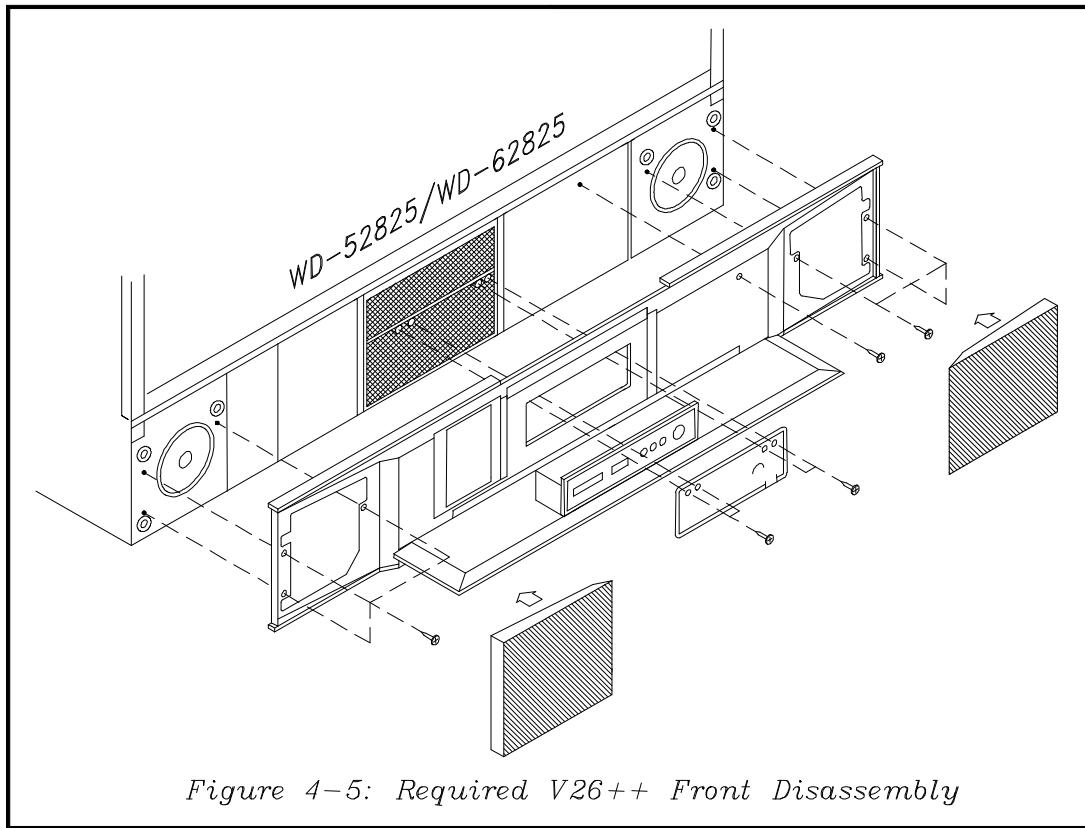


Figure 4-5: Required V26++ Front Disassembly

Figure 4-6 shows the location of the Rotation Adjustment and the Rotation Locking screws on the Light Engine Adjuster. *Figure 4-7* shows the location of the Keystone adjustments and locking screws on the small mirror adjuster.

Rotation Adjust

From *Figure 4-6* the Rotation Locking Screws are on the front of the Light Engine Adjuster, and the Adjust screw is on the left side, from the rear.

Neither the locking or adjust screws are as accessible as shown in *Figure 4-6*.

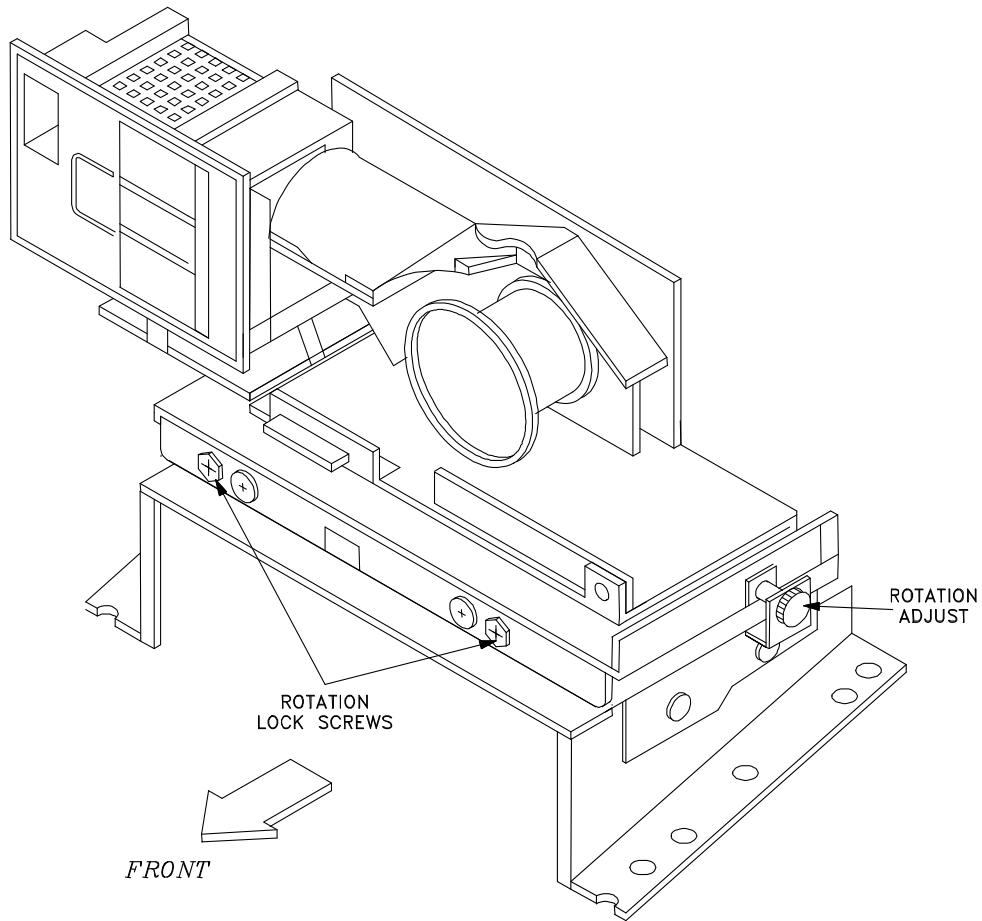
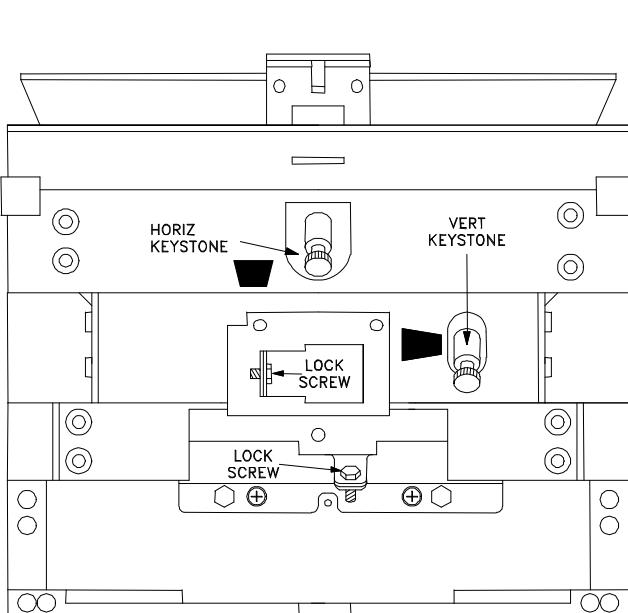
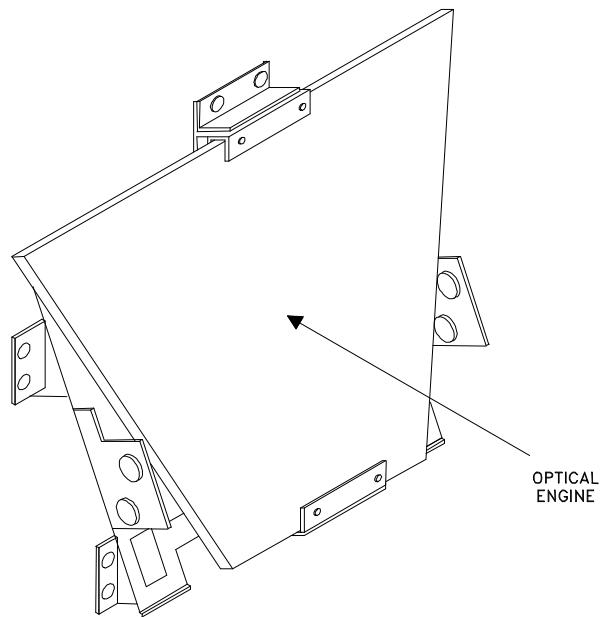


Figure 4-6: Rotation Adjust & Locking Screw Location

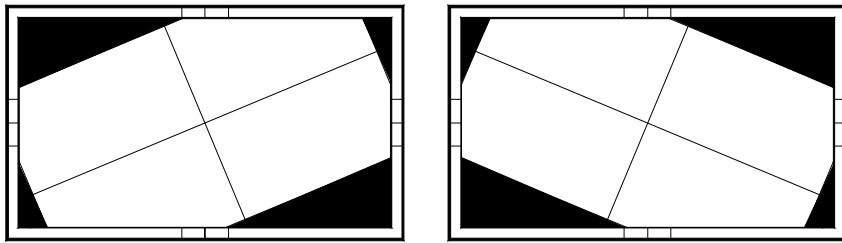


Small Mirror (Rear)



Small Mirror Reflective Side

Figure 4-7: Small Mirror Adjustment Assembly



ROTATION ADJUSTMENT

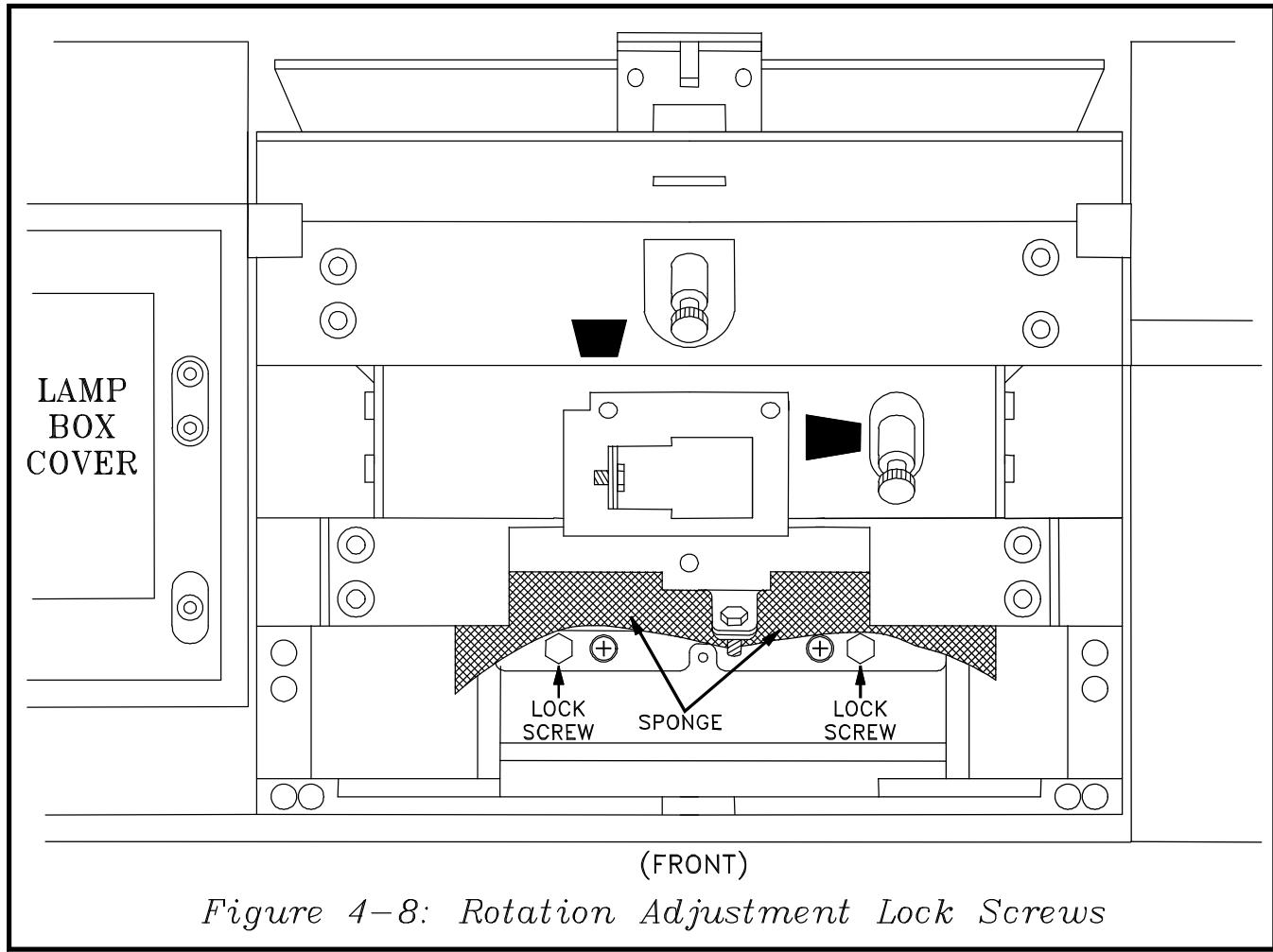
For all mechanical adjustments:

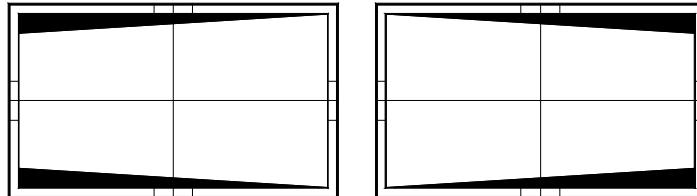
- Locking screws are brass.
- Adjustment screw are black. (A 4mm Allen wrench is needed to turn Adjustment screws.)

The Rotation Locking Screws must be accessed from the front of the unit. Referring to *Figure 4-8*, the two brass Rotation Locking Screws are behind the sponge that surrounds the projection lens. Push the sponge upwards to expose the Locking Screws. Loosen both

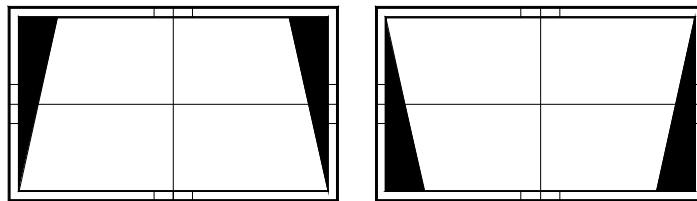
brass Locking Screws before attempting to adjust picture rotation.

From the rear of the TV, the Adjustment screw is located on the left side of the adjuster assembly , refer to *Figure 4-6*. A mirror must be used to make this adjustment since the screen is not visible from the rear of the set. When the adjustment is complete, tighten both Rotation Locking screws.





VERTICAL KEYSTONE ADJUSTMENT



HORIZONTAL KEYSTONE ADJUSTMENT

Keystone Adjustments

The Keystone locking and adjustment screws are easier to access. Both are accessible from the front, refer to *Figure 4-9*. Loosen the two brass locking screws before attempting the adjustment.

After completing the adjustments, tighten both locking screws. As an added protection, apply Locktite to the Adjustment screws.

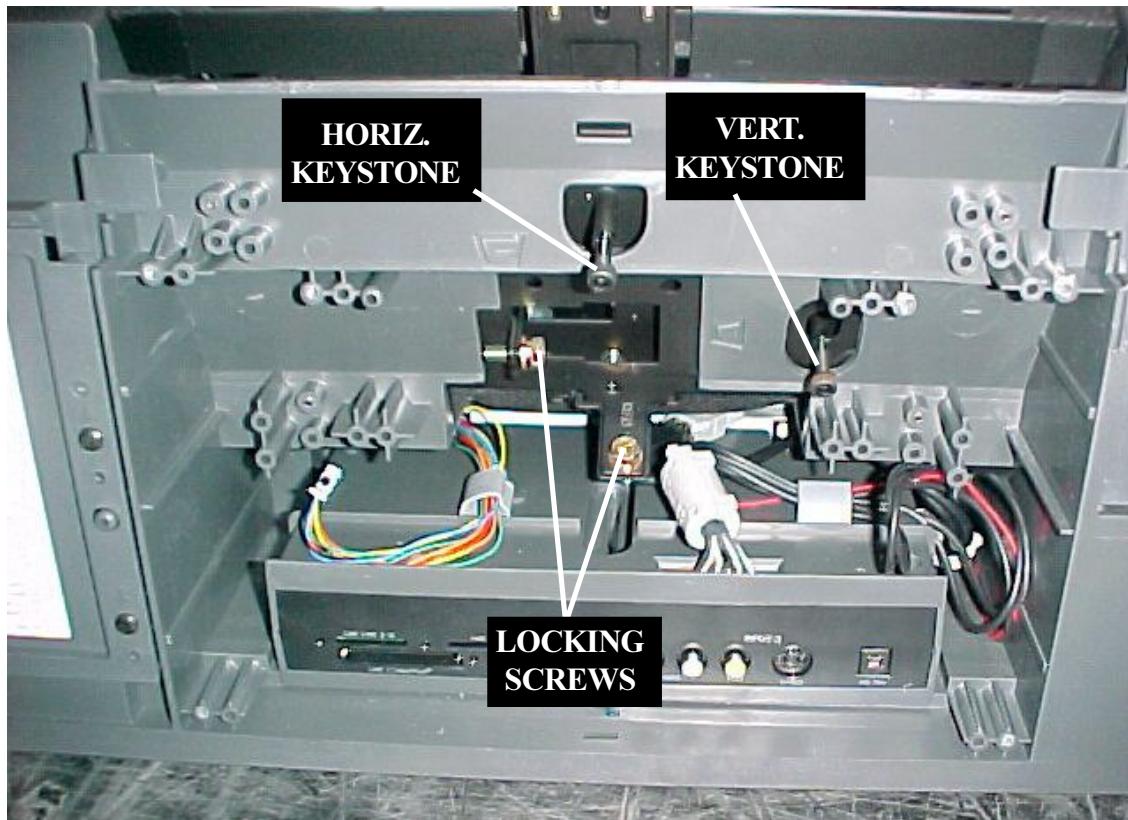


Figure 4-9: Keystone Locking and Adjustment Screws

Data Transfer & Data Reset

When either the Light Engine or the Chassis is replaced, the data in the Light Engine must be transferred to the chassis.

To transfer data from the Light Engine to the Chassis:

- 1) Enter the Service Mode (MENU-2-4-5-7).
- 2) Press "0" (zero).
- 3) Three added choices appear on screen, refer to *Figure 4-10*.
 - Copy Light Engine E2PROM to DM
 - Restore Back Up
 - Upload Terminal Board Data

- 4) Select Copy Light Engine E2PROM to DM.
(ADJUST buttons)
- 5) Press ENTER... the data will be transferred.
- 6) Press MENU twice to Exit the mode.

Resetting Data

If Restore Back Up is selected and ENTER pressed, the data in the Service Mode is reset to the factory values.

The third choice, Upload Terminal Board Data is not valid in the V26, since the complete chassis is replaced and not just the DM-PWB.

MENU-2-4-5-7 then Press "0"

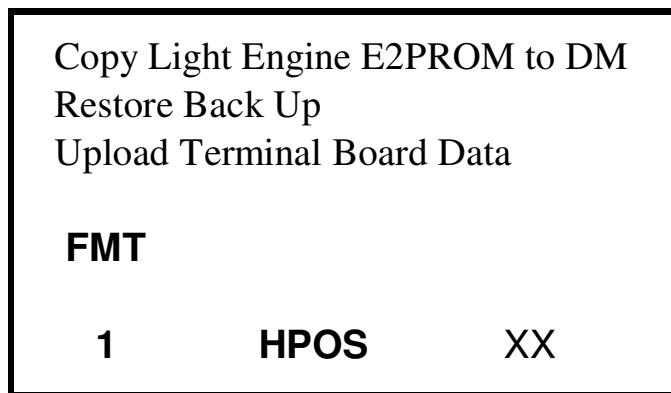


Figure 4-10

Chapter 5

Troubleshooting

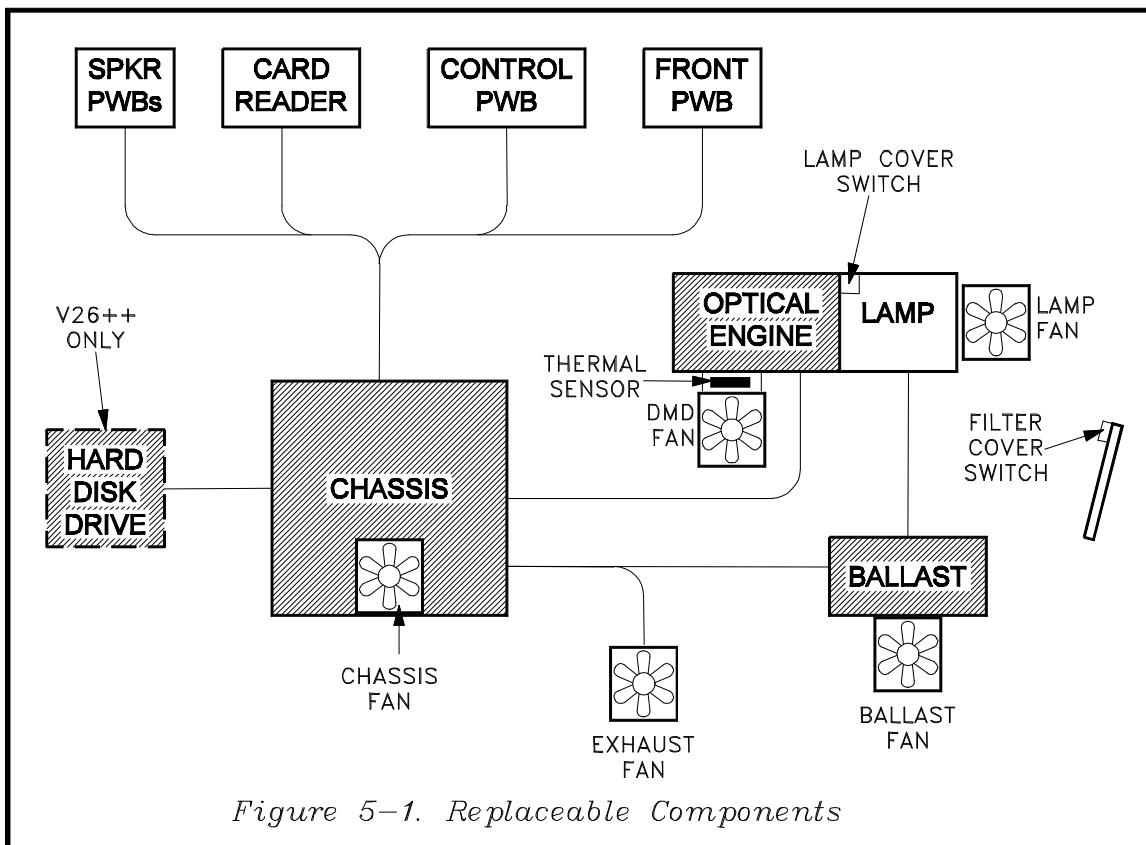


Figure 5-1. Replaceable Components

Troubleshooting in V26 models is down to major components only. The major components are shown in *Figure 5-1*. The largest major components are the:

- Chassis
- Light Engine
- Lamp Ballast
- Hard Drive Disk (V26++ Only)

The Chassis is usually the problem, rather than the Light Engine or Lamp Ballast.

Small Peripheral Components Include:

- 5 Cooling Fans

- Memory Card Reader
- IR Receiver
- Speaker PWBs
- Control PWB
- Front PWB
- Lamp & Filter Cover Switches
- DMD Thermal Sensor

The Lamp Cartridge is a user replaceable item. No Service Adjustments are required unless the Chassis or Light Engine are replaced.

Table 5-1 : Normal LED Indications

POWER LED	STATUS LED	LAMP LED	Power Status	Condition
Off	Off	Off	Stby	Off
Green	Off	Off	P-ON	Power On
Off	Off	Blinks Green	After Turn Off	Lamp Fan On for 1 minute
Blinks Green	Off	Off	Stby	Booting after AC applied
Slow Blinks Green	Off	Off	Stby	On Timer is set

Front Panel LED Display

There are three front panel LEDs, Power, Lamp and Status. The three LEDs indicate the sets current operating status, and also indicates the possible cause of a problem. *Table 5-1* lists the normal LED indications.

Referring to *Table 5-1*, the Status LED is normally OFF in all modes. The Lamp LED is Off except when the set is switched Off, then it blinks green for 1 minute. This

indicates the Lamp Fan is running as long as the blinking continues (one minute).

If the TV is Off and the Power LED slowly blinks green, it indicates that the set's On Timer is set.

Abnormal Power LED Indications

Abnormal indications are listed in *Table 5-2*. If the **Power LED** continually blinks green, it indicates that

Table 5-2 : Abnormal LED Indications

POWER LED	STATUS LED	LAMP LED	Power Status	Condition
Continuous Green Blinking	Off	Off	Stby	Perform System Reset
Off	Yellow	Off	Low Power	Excess Temperature
Off or On	Off	Yellow	No change	Usage time over 4000 Hrs.
Off	Off	Blinks Yellow	Low Power	Lamp Cover open
Off	Blinks Yellow	Off	"	Filter Cover Open
Off	Off	Red	Stby	Lamp did not turn On
Off	*Blinks Red	Off	Low Power	Chassis Fan Stopped
Off	**Blinks Red	Off	"	Ballast or Exhaust Fan Stopped
Off	***Blinks Red	Off	"	DMD or Lamp Fan Stopped
Off	Red	Off	"	Short or DVI Cable from FMT to DMD disconnected

*Blinks = (1 long/1 short)



**Blinks = (1 long/2 short)



***Blinks = (1 long/3 short)



the DM has not booted up. Press the front panel Reset button, or unplug AC and then plug the AC back in.

Abnormal Status LED Indications

If the Status LED is constant yellow, it indicates excess temperature. Check the Air Filter and clean if necessary.

If the Status LED blinks yellow, check that the Filter cover is installed properly.

If the Status LED blinks red, note the code.

- 1 long...1 short = Chassis Fan stopped
- 1 long...2 short = Ballast or Exhaust Fan stopped.
- 1 long...3 short = DMD or Lamp Fan stopped.

If the Status LED is constant red, there is a circuit failure (short), or the DVI cable to the Light Engine is disconnect.

Abnormal Lamp LED Indications

- Constant yellow ... current Lamp usage is over 4000 hours.
- Blinks yellow ... Lamp Cover is open.
- Constant red ... Lamp failed to turn On (refer to the Lamp Troubleshooting Procedure)

Error Code Operational Check

If the TV shuts down for some unknown reason the Error Code Operational Check usually indicates the cause.

When the TV shuts down the Operational Check can be performed. DO NOT shut the TV Off. Press and Hold the DEVICE and MENU buttons, for 5 seconds. The Power LED will start flashing a two digit Error Code.

To determine the error code: count the number of times the Power LED flashes.

- First the value of the MSD (10s digit) is flashed.
- After a short pause, the LSD (1s digit) value is flashed.
- The code is repeated 5 times.

Table 5-3 lists the possible Error Codes.

Lamp Troubleshooting

If installing a new Lamp Cartridge does not cure the problem, the problem could be due to Lamp Ballast or the Chassis.

Refer to *page 2-7 in Chapter 2* on how to access the Lamp Ballast.

Error Code Causes
LED Diagnostic Activation (MENU&DEVICE Keys)

Error Code	Cause
12	No Problem
22	Momentary Reset
32	Lamp Cover open
33	Air Filter Open
34	Lamp did not turn On
35	Chassis Fan Stopped
36	Ballast or Exhaust Fan Stopped
37	DMD or Lamp Fan Stopped.
38	Excess Lamp Temperature
39	Excess DMD Temperature
41	Short Detection
44	DVI cable from FMT-PWB to the DMD-PWB is disconnected.

Table 5-3

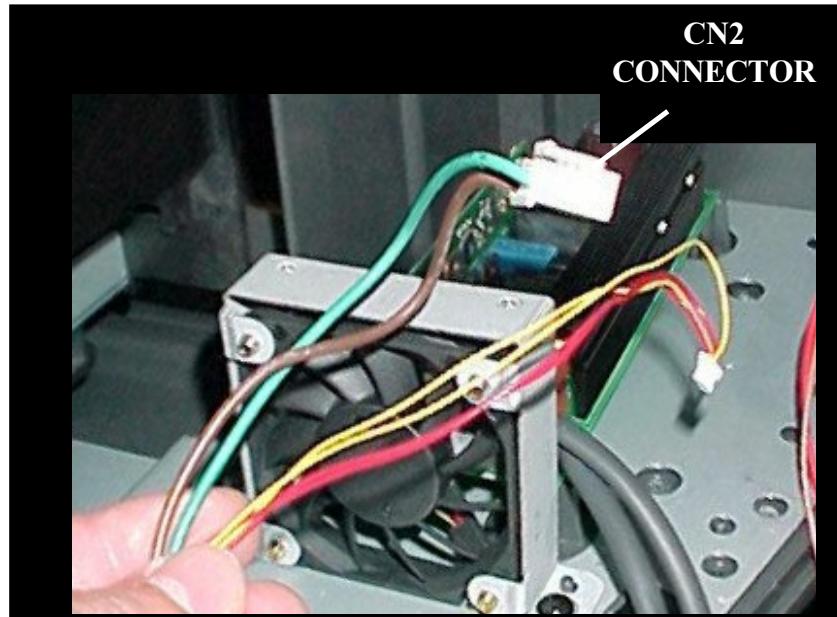


Figure 5-2: Measuring Ballast Supply

Lamp Trouble Shooting Procedure

- 1) Unplug the CN2 connector on the Lamp ballast, refer to *Figure 5-2*.
- 2) Connect a DVM between pins 1 and 3 of CN2 connector.
- 3) Check the voltage when the set is first turned On.
 - If 340VDC it points to a Lamp Ballast problem.
 - If the voltage is missing or incorrect, suspect the chassis.

Refer to *page 2-6 in Chapter 2* for the procedure to access the PCB-POWER. To turn the set On, the Exhaust Fan must be plugged in, and the Lamp and Filter Covers must be installed.

Table 5-4 lists the key voltages to be measure on the PWB-POWER. *Figure 5-3* shows the Test Point locations on the PWB-POWER.

Use the Voltage Table and Test Point Locations to check for abnormal voltages.

- If all voltages are missing...check fuse F9D00.
- Abnormal voltages indicate a problem on the PWB-POWER..

POWER-PWB Troubleshooting

(This procedure is provided as a reference only.
Normal service policies call for repair to Chassis level Only.)

Test Point	Approx. DC Voltage	Stby (Bootup)	Power On
TP6VS	7V	Yes	Yes
TP12VS	12V	"	"
TP+15V	+15V~-15V	"	"
TP-15V	-15V~-20V	"	"
TP30VS	30V	"	"
TP3.3V	3.3V	No	"
TP5V	5V	"	"
TP10V	10V	"	"
TP12VS	12	"	"

Table 5-4: PWB-POWER Voltage Checks

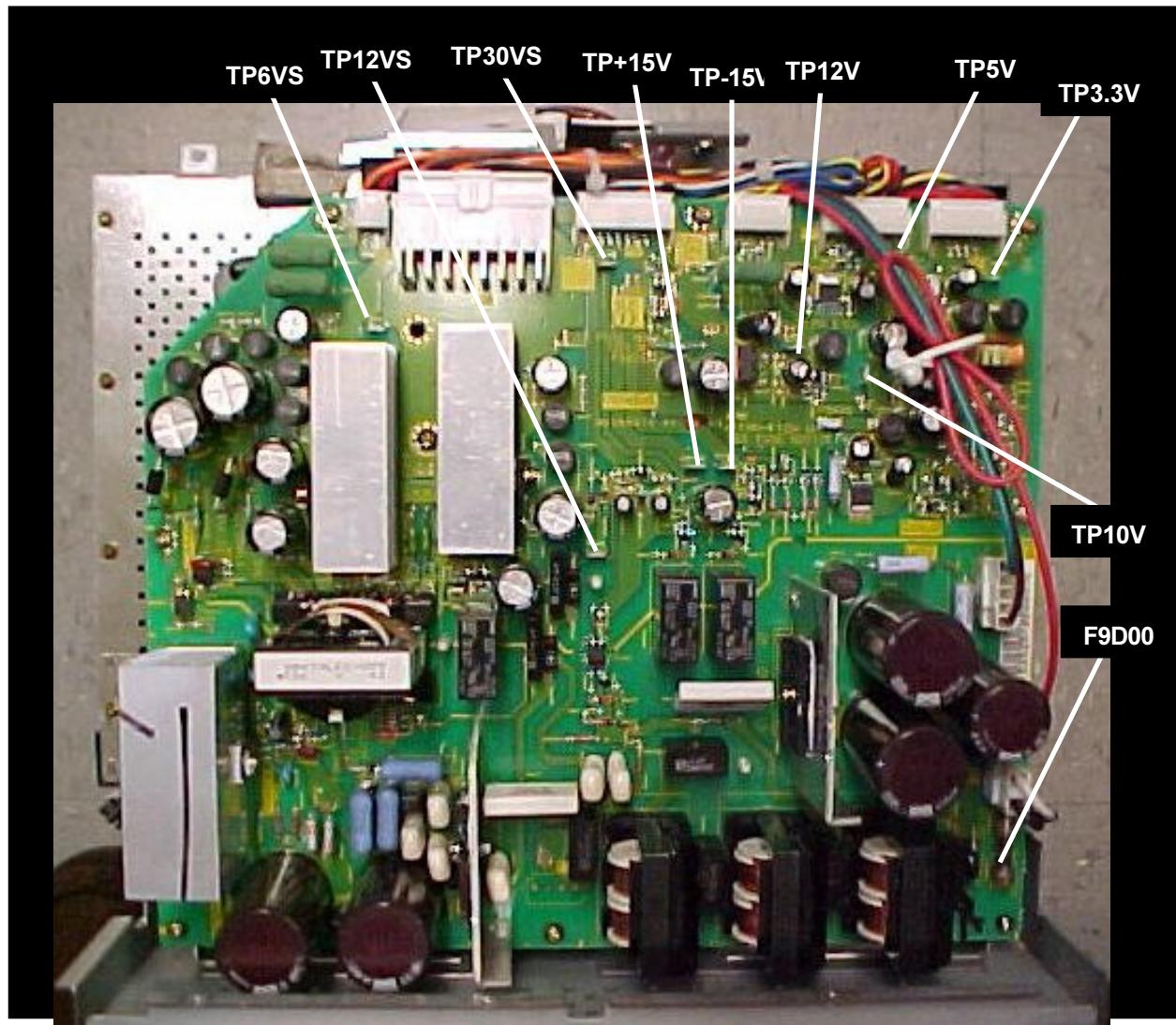


Figure 5-3: PWB-POWER Test Points

Chapter 6

Block Diagrams

The Block Diagrams in this chapter are not detailed, but serve to familiarize technicians with the circuitry in the various sections on the TV, and to give them some feeling for the signal path. The diagrams include:

POWER SUPPLY

- Standby Power Supplies
- Switched Power Supplies

VIDEO SIGNAL PATH

- Tuner Circuitry
- A/V Video Select Circuitry
- Y,Cb,Cr Signal Path

SOUND CIRCUITRY

- A/V Sound Select Circuitry
- PWB-SIGNAL Sound Select Circuitry
- Sound Output Circuitry

CONTROL CIRCUITRY

- Serial Control Lines
- Reset Circuitry
- Command Input Circuitry
- Status Monitoring Circuitry

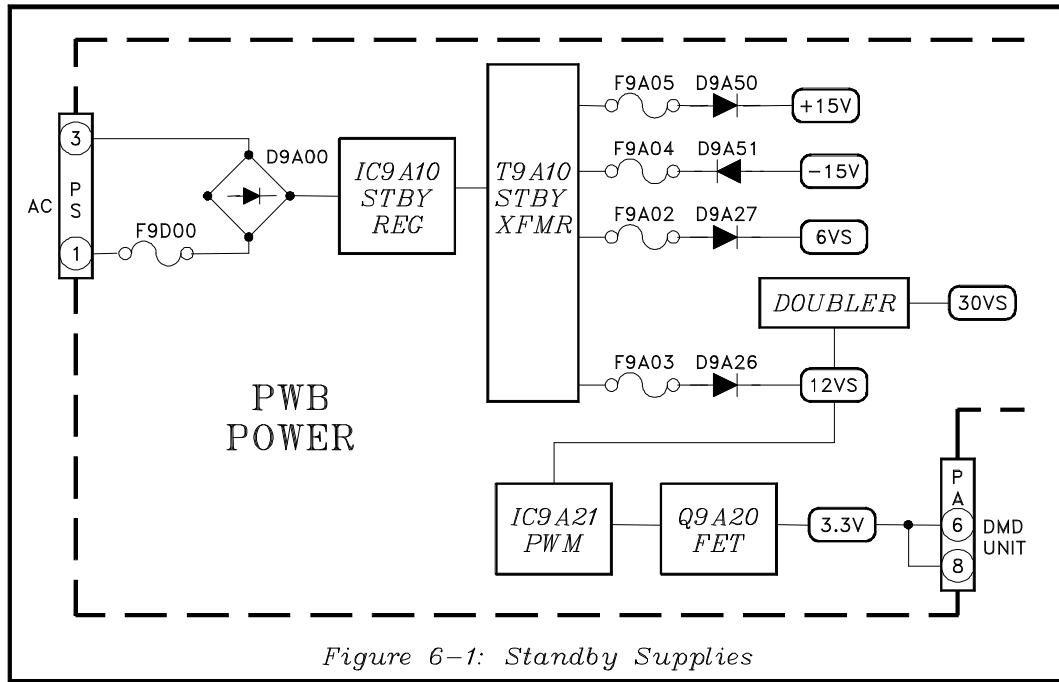


Figure 6-1: Standby Supplies

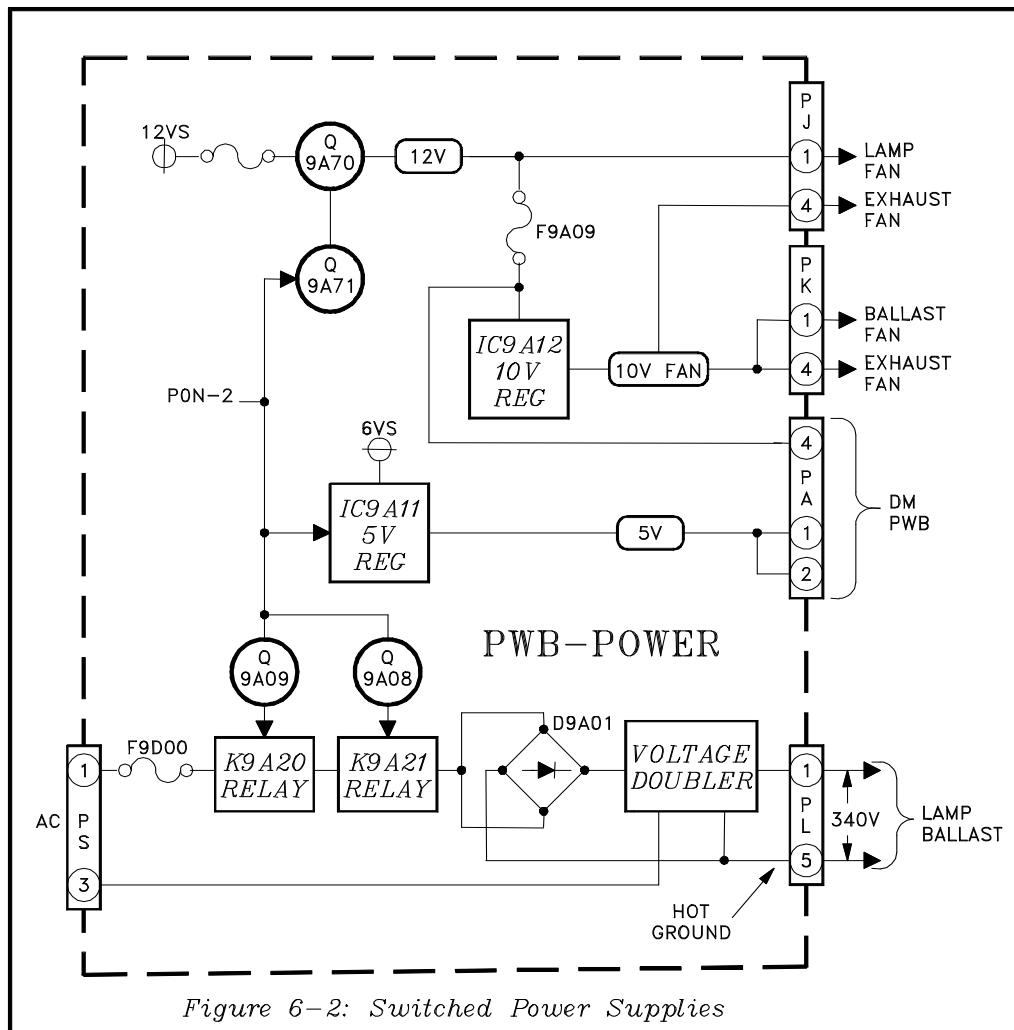


Figure 6-2: Switched Power Supplies

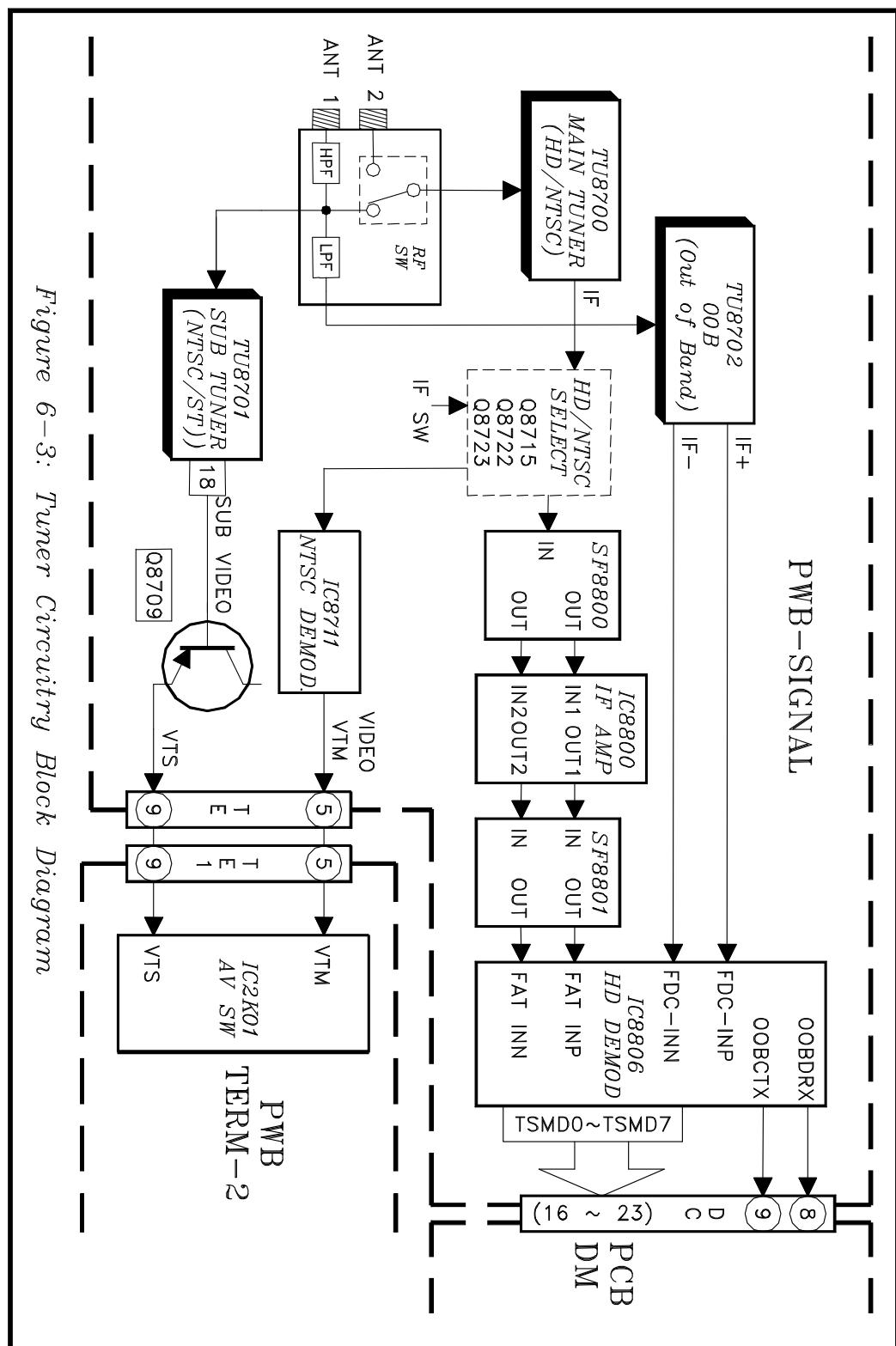


Figure 6-3: Turner Circuitry Block Diagram

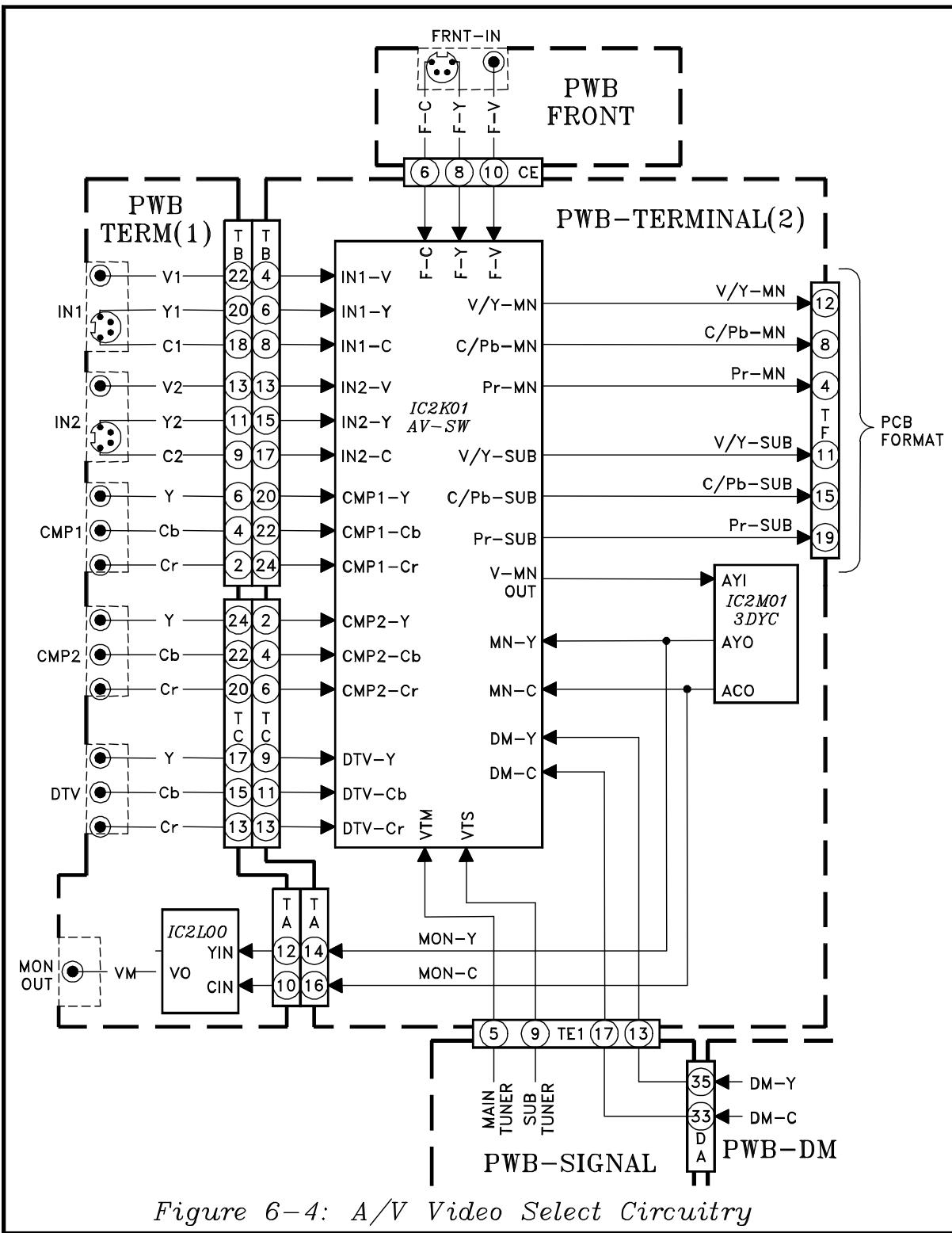


Figure 6-4: A/V Video Select Circuitry

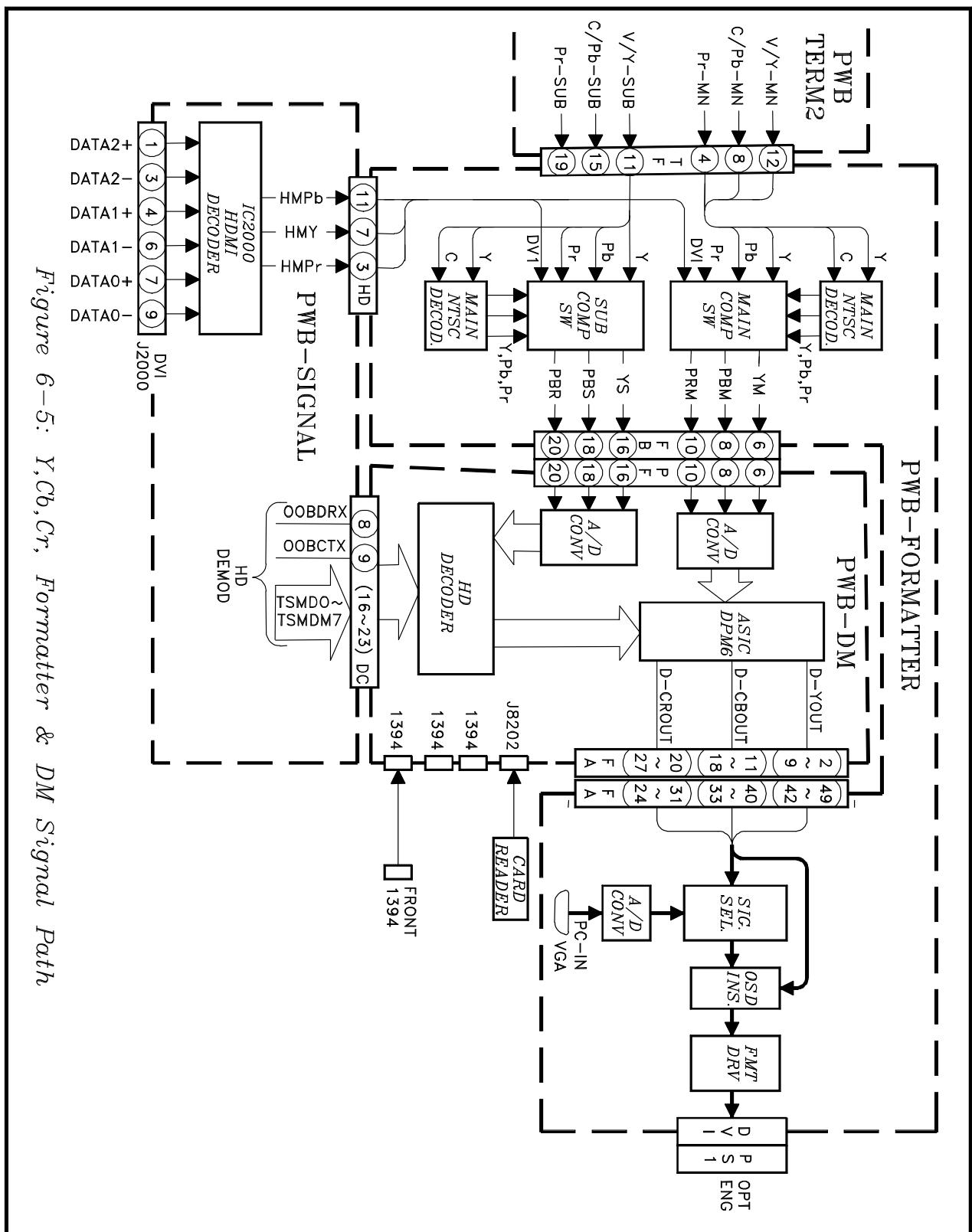


Figure 6-5: Y,Cb,Cr, Formatter & DM Signal Path

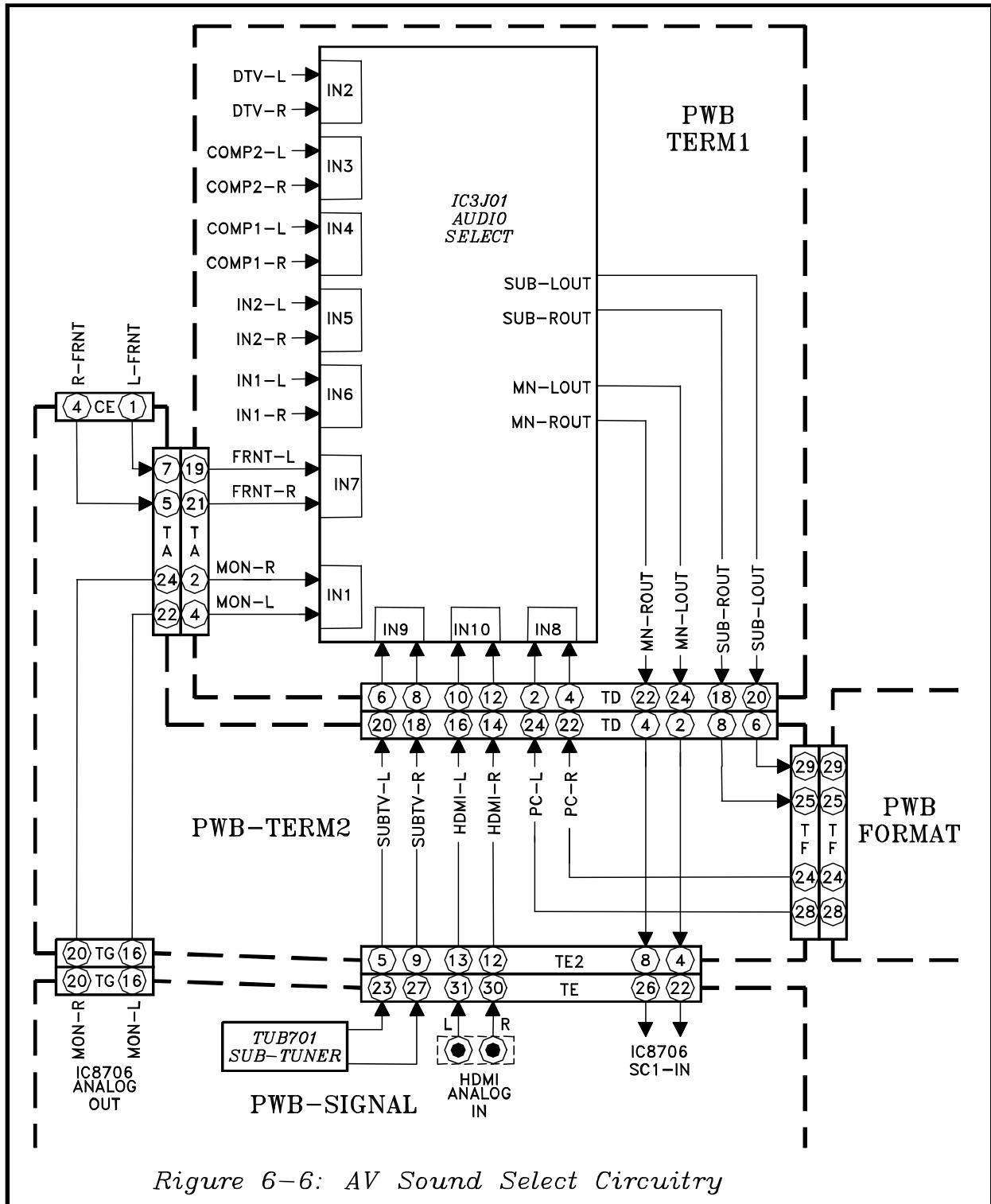


Figure 6-6: AV Sound Select Circuitry

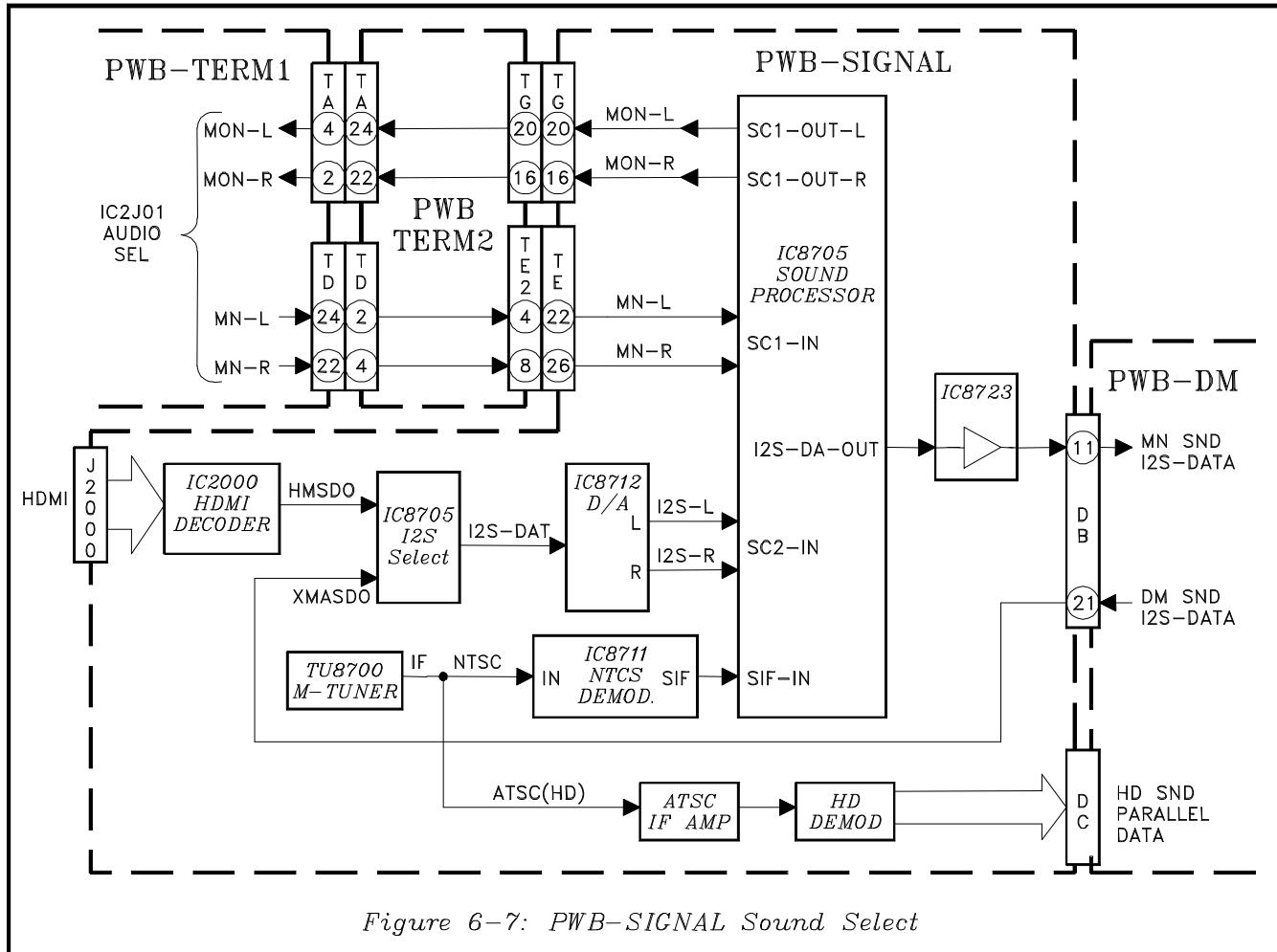


Figure 6-7: PWB-SIGNAL Sound Select

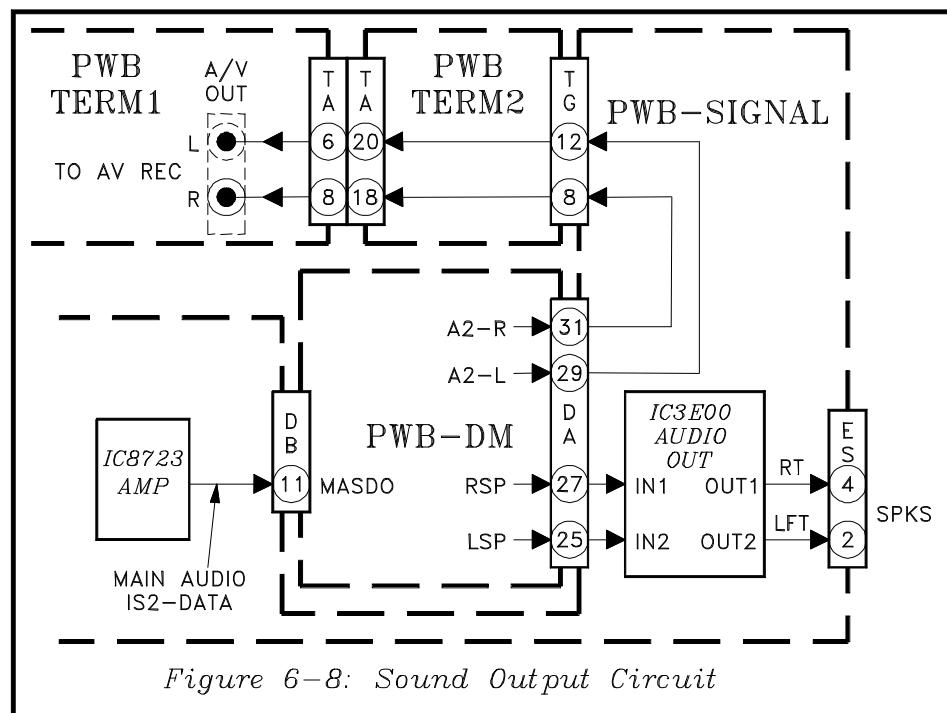


Figure 6-8: Sound Output Circuit

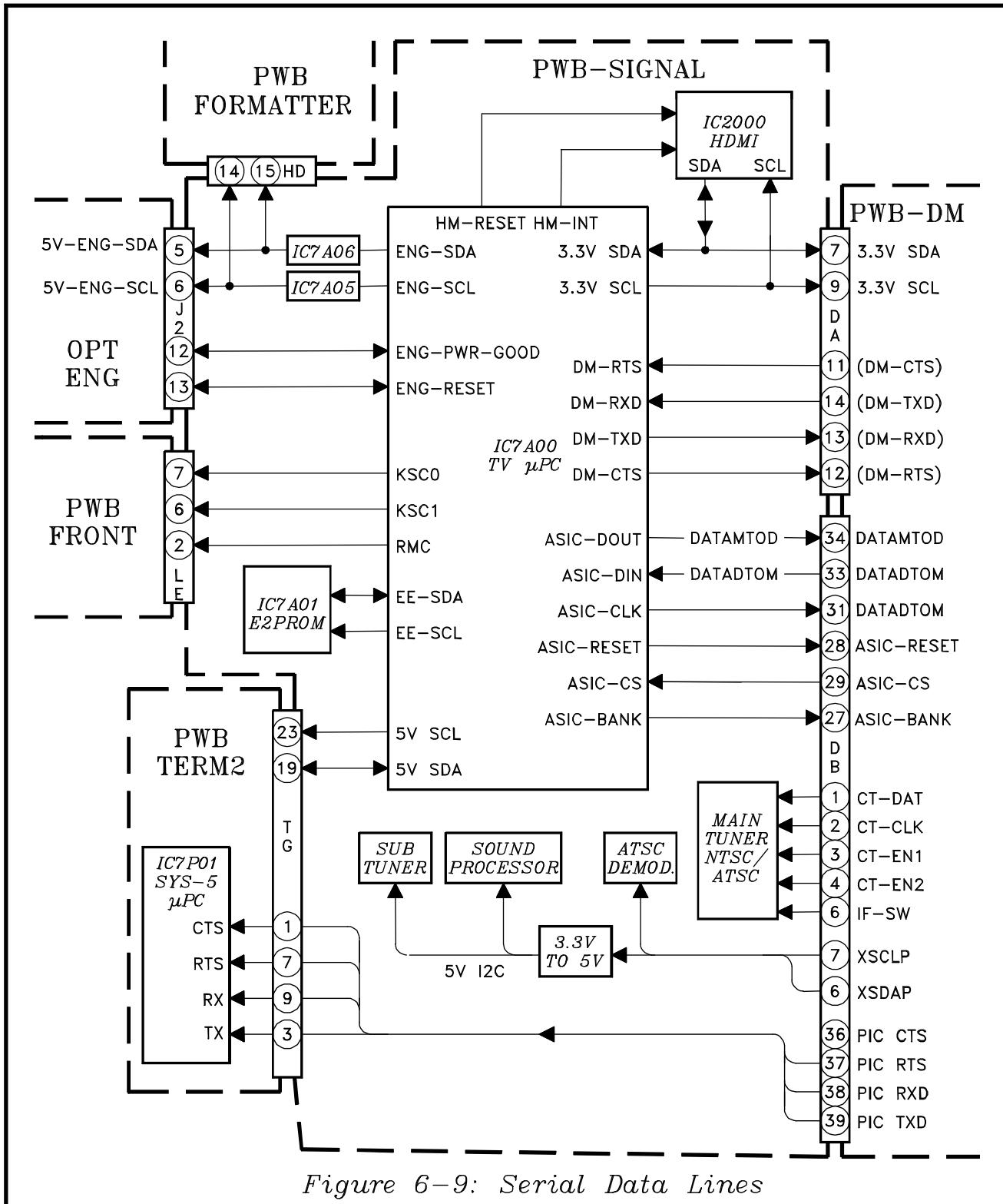
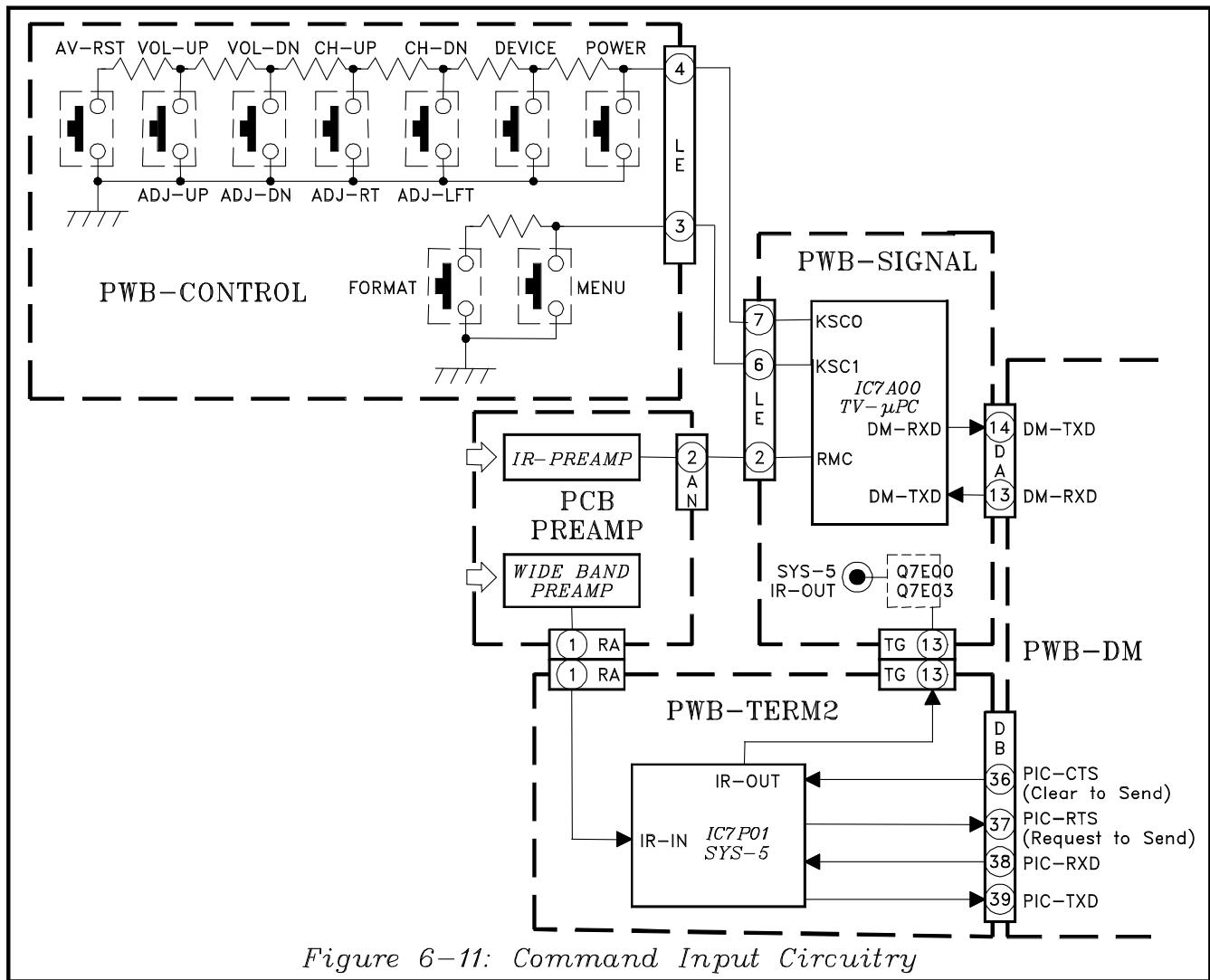
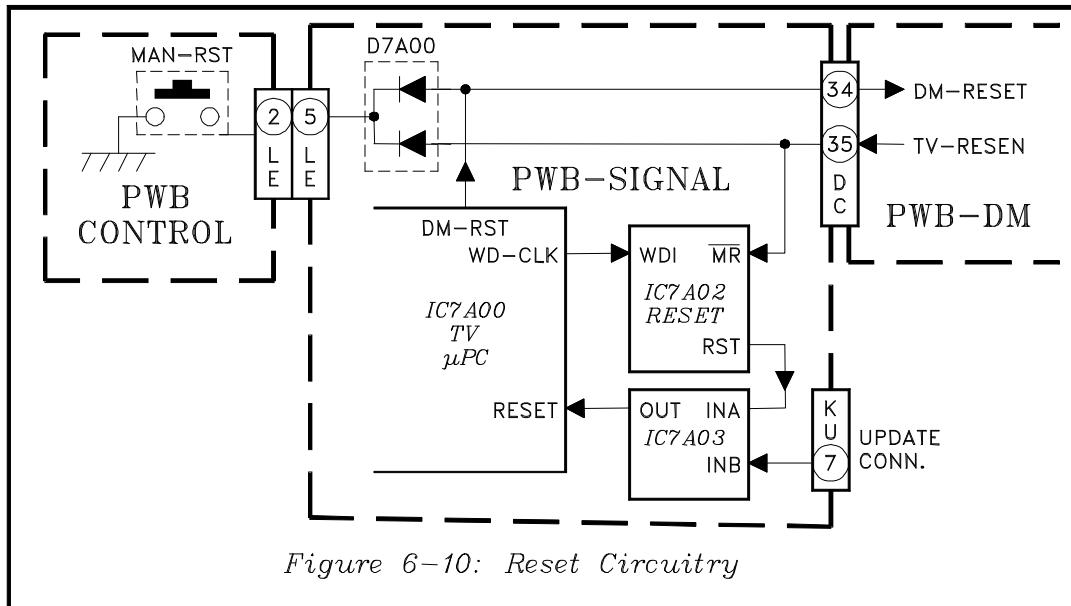


Figure 6-9: Serial Data Lines



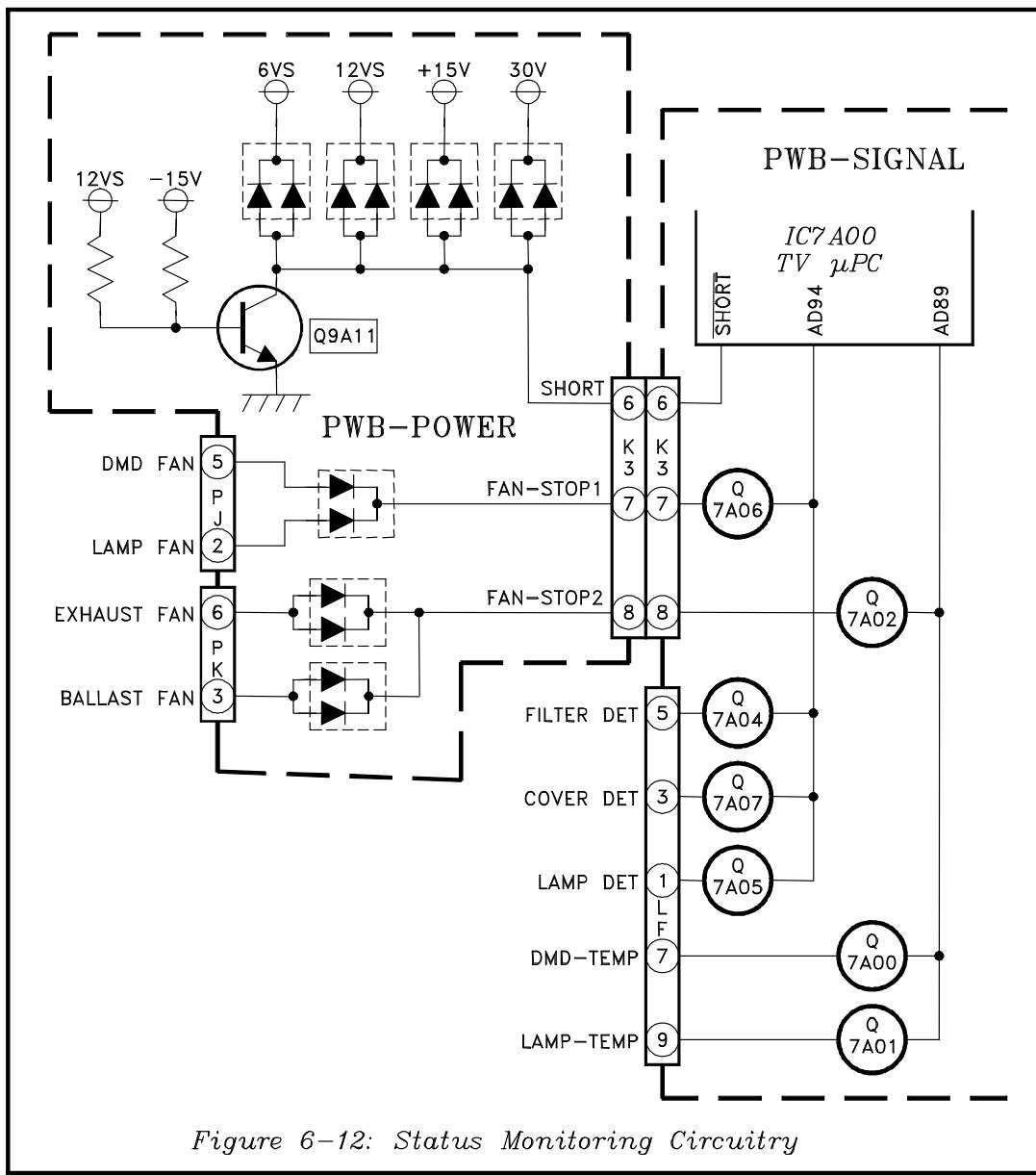


Figure 6-12: Status Monitoring Circuitry